ELEMENTARY SCHOOL OBJECTIVES

A report prepared for

THE MID-CENTURY COMMITTEE ON OUTCOMES IN ELEMENTARY EDUCATION

By NOLAN C. KEARNEY

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FOREWORD

The Mid-Century Committee on Outcomes in Elementary Education was assembled to describe for educators, test-makers, and interested citizens the measurable goals of instruction in our American elementary schools. Though other groups and individuals have specified some of the outcomes sought by the schools, or have described the subject matter and activities of schools, there has long been a need for a comprehensive and authoritative survey of elementary schooling, with primary emphasis on behavioral goals. Such a survey should identify desirable attainable objectives so that they may be susceptible to measurement, evaluation, and critical philosophical analysis. It should regard the objectives of elementary education in their democratic American context. It has been said that the future of our way of life is peculiarly dependent upon what happens in our elementary schools in the next decade or two.

In response to this need in the elementary schools for more and better means of assessing the results of instruction, Educational Testing Service began to explore the problem. It soon became apparent that before more tests were added to the thousands already available a general consensus of educators and other citizens should be reached on what the elementary schools are and should be attempting to do. Only with such a consensus as a guide can educational measurement be applied with meaning and practical value.

Any sound attempt to sample the character of modern American education is a large-scale project, costly in effort, time and money, not to be undertaken lightly or alone by any organization. Russell Sage Foundation saw in this project sufficient merit to warrant a substantial investment of funds and advisory counsel. The United States Office of Education and the Department of Elementary School Principals of the National Education Association also found the project to hold much promise for education; so they, too, became partners in the enterprise.

The four sponsoring agencies invited outstanding educators from all sections of the country to become members of the Mid-Century Committee on Outcomes in Elementary Education and to help describe the objectives of elementary schools. This Committee was composed of three groups,[1] each related to the others but performing its own specialized function.

The Committee of Consultants consisted of thirteen outstanding educational leaders, specialists in their fields, who described the possible and desirable outcomes of elementary school instruction. The consultants based their recommendations on the evidence of research as to how children learn, what they need to learn, and what they are capable of learning at various age levels.

The Committee of Critics was a group of ten classroom teachers and supervisors, "front-line" educators known for their successful teaching, who evaluated the consultants' recommendations in the light of the practical classroom situation and made additional recommendations.

The Survey Committee—eleven school administrators, teachers, researchers, and representatives of the interested public—assumed responsibility for interpreting the recommendations and giving structure to the report of them.

It was the hope of the sponsors of the project that much of the usefulness of the work of the Mid-Century Committee—and perhaps also some of its public acceptance—would result from the fact that the goals of elementary education would be described, not by any closely knit or highly organized group, but by many competent and independent *individuals*. To preserve the advantages of the individual approach, no controls or directions were set up for the consultants—with one exception. The single exception was an urgent request that every outcome or objective be described in terms of *overt behavior or an observable condition*. This exception had its source in a desire to make the Committee's recommendations as specific and concrete as possible, and to lay down useful guidelines for the building of tests.

After the Committee of Consultants and the Committee of Critics had done what was requested of them, the Survey Com-

[1] Members of these groups are listed on p. 3.

mittee went over the material very carefully and developed a philosophic framework within which the final report should be submitted. This framework, referred to in the report as a "grid," is presented in Chart 1 and in two succeeding charts.

At this point the Survey Committee decided that the synthesis of all recommendations and the preparation of the Committee's report ought to be accomplished by a single person.

Preparation of the final report by one person would have certain advantages. Materials could be approached with some degree of objectivity and detachment; they could be examined with a consistency not possible among committee members working independently; they could be organized around a single point of view that readers would recognize and take into account in using the report.

The Committee was singularly fortunate to obtain Dr. Nolan C. Kearney as a special consultant, for the purposes of summarizing the recommendations and preparing this report. Dr. Kearney is Assistant Superintendent for Curriculum and Research in the public schools of St. Paul, Minnesota. He brings to the project a broad and rich experience in public education—as a teacher, as an administrator, and as a researcher. In addition, as is evident in this report, he approaches educational problems with a well-defined philosophy that accepts children as they are, but seeks education as it ought to be. The Committee is indebted to the Board of Education of St. Paul for granting Dr. Kearney the leave of absence which permitted him to join the project for this important work.

Since from the outset the Committee dealt with educational goals in terms of observable behavior—what happens to the child's way of reacting to his environment as a result of his school experience—the summary of its work should be useful to all who are concerned with the education of children. Teachers and school administrators will discover in it practical orientation for the planning of instruction. With their help, parents and citizens, too, may find it a source of enlightenment. Testing agencies will gain from it a working definition of the things for which measuring techniques are most needed in the schools.

The working papers on which Part Two of this book is based are available to educational research specialists and others desiring them, in a volume entitled *Supplement to the Report of the Mid-Century Committee on Outcomes in Elementary Education*, which can be purchased from Educational Testing Service, Princeton, New Jersey.

HENRY CHAUNCEY, *President*
Educational Testing Service

Princeton, New Jersey
April, 1953

PREFACE

This report presents the specific objectives of elementary education as they have been outlined by a distinguished group of consultants and evaluated by carefully selected critics. In presenting them, an attempt has been made to interest readers who are not primarily educators and, at the same time, to present material of real significance to educators and educational specialists.

What *are* the goals and the outcomes of elementary education? Though the question is a technical one, it is a matter of great public concern. It is so crucial in our society today that a dual effort in its presentation seems imperative. If education is to carry out the purposes set for it by our society, some means must be sought by which professional educators can break common bread with sincere and intelligent laymen.

Although an effort has been made to avoid the special vocabulary of pedagogy, technical terms inevitably make their appearance. In some cases, homely illustrations may assist in giving meaning to professional terminology. In other cases, the context may make it sufficiently clear. Our topic is one of the most perplexing in all education, for it is concerned with determining the effectiveness of elementary education. The nature of the young learner is part of the problem. How he learns and how well he learns must be considered. What he learns is basic to the whole topic. Yet, this definition of goals is but *one step* toward better tools and better procedures in measuring educational growth and ultimately in improving instruction.

The report is not intended to be an overview of all aspects of elementary education. Its principal aim is to present a revealing discussion of obtainable objectives rather than to deal with problems of curriculum or instructional methods. Since all educational problems relate to and overlap one another, as problems do in every enterprise of social import, the discussion throws light on many questions not central to the focus of the study.

John E. Dobbin, Director of the Cooperative Test Division at Educational Testing Service, served as project director during the entire time this study was being planned and carried through. His ability to care for endless detail, his persistence, his editorial ability, and, most of all, his inspiration and enthusiasm contributed beyond measure to the success of the project.

This report demonstrates the high idealism and scientific devotion of educators in the job society has assigned to them. It is a great honor to have been asked to pioneer with the Mid-Century Committee.

NOLAN C. KEARNEY

Princeton, New Jersey
April, 1953

Part One

BACKGROUND FOR THE STUDY

Why do we send our children to school? What do we expect them to learn in school? What *do* they learn—and how well?

We Americans spend a great deal of effort and money on education. It is our second largest social enterprise. Yet, when we ask each other what we expect our young people to gain from education, particularly that part of schooling which is not directly preparation for a job, our answers are often vague and fuzzy. What *do* we expect children to learn in school—in the elementary school, for instance? Some interested people say that the elementary schools should limit their goals to learning of "the fundamentals," but what *are* the fundamentals to be learned by children in our time?

Clear-cut and definitive answers to these questions would be helpful to almost everyone concerned with education, including persons whose job it is to devise ways of measuring educational growth. But, since most of the questions do not have clear-cut or definitive answers, the next best thing is a summary of what competent educators and informed citizens *think* the goals of education ought to be. This book reports, and provides the setting for, just such a summary.

In the pages that follow, at least three different groups of readers will find interesting and useful information:

1. *Parents and interested citizens* will find exact descriptions of the goals that professional educators think the elementary schools should seek to attain with children. Given this comprehensive list of objectives, parents and educators in a local area together can select the goals that are appropriate for *their* community and school.

2. *Teachers and school administrators* will find reflected in the list of goals much of that high idealism with which Americans have

built a democratic concept of education, and at the same time a very practical definition—in terms of behavior—of each of the stated goals.

3. *Persons concerned with measurement of educational growth* will find a list of objectives stated in measurable terms, so that the measurement of learning can be made to coincide with the important goals of learning.

This report is a study of goals for elementary education in America as they were outlined by a group of prominent educational authorities and criticized by an equally capable group of educators who are at work in the schools. The whole manuscript was read and criticized by interested educators, psychologists, and citizens before the final copy was prepared. Thus, the study gains its strength from the wide participation that went into its preparation. Particular interpretations, however, must be ascribed to the writer, who received many helpful and constructive suggestions but exercised an author's privilege in not accepting all of them. As already noted, the working papers on which Part Two of this book is based are available to research specialists in education on order from Educational Testing Service.

THE ENVIRONMENT IN WHICH SCHOOLS WORK

Americans today are concerned about their schools. This interest springs from many sources. A high respect for education was evident in colonial days and has grown steadily since. It is based on the faith that through education one generation can help the next to live the good life, preserve the good values, improve as individuals, and promote the civic and economic welfare of all. One has to make only a casual survey to see on every hand evidence of this faith and this respect for education. Institutions devoted to one or another of the aspects of education are all around us—schools, libraries, museums, foundations, churches. Their number and diversity demonstrate our conviction that through education we can achieve our goals.

As the tempo of change has increased and the technology of living has become more complex, myriads of new demands have

been made upon education. These new demands have been accompanied by widespread interest in the improvement of schools.

The changes taking place in modern America have been discussed many times. It would be impossible in a single list to mention them all, for they are found in every aspect of our living —in all our sciences and arts, in all our social institutions, in our language and all our methods of communication, in our jobs, in our recreation, and in many of our ways of thinking and feeling. Some changes in the home are illustrative. The churning and sewing and cooking of fifty years ago, the horse and buggy, the cow and the chickens, the family circle around the kerosene lamp on the dining-room table are a far cry from the streamlined family center today. Gramophones, radio crystal sets, earphones, magnetic speakers, AM and FM, superheterodyne, record changers, black and white television, coaxial cables, color![1] Changes can be seen, too, in the subject matter taught in the schools. The child who "took" American history in 1910 found that his textbooks ended at a point just beyond the Spanish-American War. After that came The Hague, World War I, the League of Nations, 1929 prosperity, the great depression, World War II, the United Nations, and the war in Korea. Since 1910 there have been Fascism, Hitlerism, Bolshevism, and Communism on the international scene, and the disappearance of the frontier, the growing need for conservation, the growth of government, and thousands of other new issues on the national and state levels. Since 1910 America has grown into the air age and the beginning of the atomic age.

These are random illustrations of the speed of change and the nature of change as they affect us all at the midcentury. Truly, the growing child today, and the schools that serve him, have problems that increase in number and grow in complexity as time passes. In the face of change, new techniques and procedures to meet new demands have become necessary. Decisions have sometimes been made with far less evidence than we would wish,

[1] Some stimulating thinking in regard to television is reflected in a book written primarily for parents, *Television and Our Children* by Robert Lewis Shayon, Longmans, Green and Co., New York, 1951.

with far less time for thought, for discussion, and for investigation than we would desire. The pressure that results from the necessity to adjust to many new situations and to decide between conflicting courses of action is typical of our time.

Some of the new problems have to do with the schools. Many of them affect our attitude toward the schools. Certain individuals have wondered whether the schools are not in some way responsible for the reluctance of others to adopt the same social or economic outlook that they themselves hold. Others have become discouraged with the lack of skill that man exhibits in controlling the physical forces he has harnessed. Still others grow impatient with the level of human ability and charge the schools with lack of effectiveness. They have fallen into the habit of seeking scapegoats—someone to blame when things are wrong. These people are prone to accuse the schools of failing to teach things that should be taught or of teaching things that are dangerous and false.

Attitudes toward the schools are affected by other more immediate factors. A man who employs stenographers discovers that many of them cannot spell at all well. Another finds that the clerks he employs cannot add. Both say that the schools should have taught these people to spell and compute. Still another, a personnel executive, finds that the people he employs frequently fail because they cause trouble, cannot assume responsibility, and do not fit into his organization in an efficient manner. He feels that his supervisors can teach workers most of the skills they need, but he would like to have the schools teach young people, while still enrolled as students, to become good members of the various groups they will be called on to join. He wants as employees persons who do not become upset and resentful when faced unexpectedly with new problems. He would like to have the schools turn out young men and women who are self-confident and capable of meeting and solving new problems, meanwhile working in an orderly way.

It goes without saying that the attitudes of many people toward the schools are affected most intimately by their own feelings and by the memories they have of their own school expe-

riences, and by the experiences of their children. The emotional context of these attitudes is complex. Illustrative of attitudes held by adults are the following: (a) A brilliant man who was also brilliant as a child remembers many of the things he knew when he was in the sixth grade. He does not remember, however, that his knowledge was exceptional, that few of his classmates or children of his time had an equal degree of academic competence. (b) A man with an unfortunate socioeconomic background and with certain personality handicaps had an unhappy school experience in a rigid, highly competitive school. He retains an emotional hostility toward schools and, particularly, toward female teachers. (c) A self-made woman who is very proud of her success attributes much of it to a rigidly prescribed and highly competitive school where she survived and became an "honor" graduate.[1]

Parents who have high hopes for their children are disturbed when they do not attain distinction in school. With or without reason, as the case may be, these parents blame the school. Parents whose children become behavior problems in school are frequently equally critical. In general, mothers and fathers hope that their children may achieve all the things that circumstances prevented them from achieving. They frequently rely on the schools to bring these hopes to reality. They do not understand that the children of a brilliant father and mother probably will not be quite so intelligent as their parents, while the children of parents relatively low in the intelligence scale probably will be somewhat more intelligent than their parents. Horse-breeders know very well how to take such factors into account. It is more difficult when our attitudes toward children are involved. The parents of highly intelligent, well-adjusted children often approve schools that are highly competitive and that use report cards in such a manner that the children who win "honors" become well known in the school community. In this way the parents gain

[1] In *Your Best Friends Are Your Children* by Agnes E. Benedict and Adele Franklin (Appleton-Century-Crofts, Inc., New York, 1951), many child-school-parent problems are discussed sensibly and calmly. The section "When Parents and School Disagree" is illustrative of much valuable material in the book. Particularly good is the discussion of children's interests.

prestige and satisfaction in the achievement of their children. Parents of children less well endowed academically are not so concerned when the achievements of the "best scholars" are not well advertised.[1]

For better or for worse, the attitudes of people toward the schools spring from the multiplication of thousands of personal items against the background of the American belief in free public education for all, the faith that education can contribute to the welfare of humanity, and the resolution that it must so serve.

Misunderstanding of the elementary schools frequently exists among people who are highly trained in other professions. College professors in the sciences and the arts, physicians, physicists, clergymen, engineers, lawyers, and creative writers are sometimes outspokenly critical of specific aspects of public school education. Some of these critics have devoted their lives to such tasks as devising new and improved methods of smashing the atom and harnessing its potential, or to developing new antibiotics for the control of presently unconquered diseases. Some of them work in a world where the synthesis of much careful research reveals promising new leads in the manipulation and control of physical forces. Many of them are good scientists and careful thinkers in their own areas. It is difficult to point out to them, when they criticize schools on the basis of incomplete information, that they are being unscientific and sometimes illogical in their approach to educational problems.

A frequent introduction to adverse remarks is, "Plain, ordinary, common sense tells us that. . . ." Common sense is a great deluder and should be depended upon only when real evidence is not at hand. It was common sense that said that heavy objects fall faster than light objects, that people should always rest in bed following surgery, that bleeding reduced the ill effects of "bad" blood, that the earth was flat, that there are only three dimensions, that light travels in a straight line, that matter is inde-

[1] Other aspects of the adult's attitudes toward the education of children can be seen in an excellent book for parents entitled *Fathers Are Parents, Too* by O. Spurgeon English, M.D., and Constance J. Foster, G. P. Putnam's Sons, New York, 1951. These authors stress the need of children for security, the problems of puberty, and the meaning of children's aggressions. They say, slyly, that many parents are struggling to rear two sets of children—their own and their parents' children!

structible. There is no end to a list of the failures of common sense. In education, many people still believe that certain subjects "sharpen" the mind, teach logical thinking, and so on. Many still believe that children learn to read best by first learning the alphabet and phonics. Others think that making children repeat grades and courses is an effective way to ensure high standards of learning and that a thing is "learned" when it can be readily recited from memory. There is much evidence to refute or greatly to modify such beliefs.

When educational procedures based upon long experimentation and careful planning are criticized lightly and without investigation by people who would not think of assuming "expert" roles in other technical fields strange to them, all education suffers. This problem is not only the educator's, however. A proper attitude toward professional opinion in all technical matters is crucial to the success of democracy in an increasingly scientific and technological era.

The misunderstanding has not been limited to parents and citizens outside the schools. Those who work in the schools have been guilty of misunderstanding, too. People in the secondary schools and colleges have not always understood the problems and the efforts of those in the elementary schools (and *vice versa*). Some teachers and their administrators have sought an established method and content that would last through the ages, and have tended to settle and depend upon what they have become accustomed to, meanwhile belaboring their more experimental and adventurous fellows who have ventured more. Others have gone to the other extreme and have embraced the novel and the different without waiting to weigh and analyze new knowledge and new research. Such tendencies are inevitable and it is from them that balance is achieved. The resultant balance will be more conducive to what is best as it avoids rancor and dangerous emotionalism and seeks calmly and scientifically the best possible course.

The automobile manufacturers did not hesitate to say that their new four-wheel hydraulic brakes were better than the old two-wheel, direct-action affairs. They told us frankly that many

people long dead would be alive had the new brakes been devised, perfected, and marketed earlier. Lighting engineers accepted the verdict that the old incandescent light bulbs were ruinous to vision. They have been busy since, devising new and better means to provide proper lighting fixtures. Similar illustrations abound in every profession and business. We need not hang our heads in shame that in our schools we have fallen short of today's vision. We did the best we knew how to do. Tomorrow we will know more.

HOW SCHOOLS OPERATE IN THEIR ENVIRONMENT

The role that the school plays in the life of each generation changes with the demands of the times. How are we to determine what the role of the school is or should be at any particular time—at the midcentury, for instance?

Role of the Public

The public schools belong to the people. Authority over education is not reserved in the Constitution to the federal government and has in consequence been delegated to the states. Though the states control education within their boundaries in many ways, they in turn delegate much control to local communities, such as school districts, cities, and counties. There are, of course, wide variations between states in the amount of control delegated by them to various districts within the states. Where great powers are granted to local elective boards of education, the schools in general become quite responsive to the public will. In the final analysis, the schools belong to the people. Within constitutional limits the people may, through their boards of education and state legislatures, direct the work of their schools as they will.

Tradition is another force that directs and controls the schools in accordance with the wishes of the people. Traditions are not always consistent with one another and they are not static, but they serve in part to establish beacon values. They are probably more useful, better developed and defined in a free democratic culture than in less enlightened societies.

The historians of education write at length about the changes that have taken place in our schools as the result of these two factors, working separately or together. In colonial times the emphasis on reading in the lower grades resulted from the desire of *parents* that children be able to read their Bibles unassisted. It was necessary that this skill be learned early, for most children never went beyond the third grade! Much later, as the result of public demand, the schools introduced manual training, sewing, the commercial arts, and trade and vocational courses. Classes for the physically and mentally handicapped appeared in the same way. Provisions for such offerings usually appear in state laws as permissive, becoming effective only when implemented by action of local boards of education.

There is a great mass of other legislation that is prescriptive in its nature. Though varying from state to state, it includes requirements that courses in American government be offered, that courses in civics include units on the Constitution of the United States, that children be taught the evil effects of alcohol and tobacco on the body, that they study the character and contributions of various national and local heroes, and so on. Some of the prescriptions are negative, as when they forbid certain types of religious ceremonies in the schools.

The fact remains, however, that most of the decisions regarding the conduct of the schools are left to local initiative, and that most of these decisions are made on the recommendation of professional people in the schools. This has come about as a result of many factors. If any institution is to be effectively managed, much executive discretion must be granted to its managers to meet conditions as they arise. Many of the decisions require technical knowledge and skill not normally possessed by citizens on policy boards. Beyond that, there has grown up in our country the feeling that the details of administration are much more free from "politics" in professional hands than in the hands of elected officials. These and similar considerations have served to place much discretionary power and, actually, even legislative authority over the schools in professional hands.

The willingness of people to delegate power to boards of education, and the further willingness of boards of education to delegate responsibility to professional educators, has produced a high level of progress in many schools and communities. It has not, however, been an unmixed blessing. In some cases, citizens have assumed that election of a "good" board of education is all that is necessary. Boards of education have assumed that if they take their responsibilities seriously, hire good executives and well-trained teachers, and provide reasonably well for other educational needs, all will be well. Professional people in education have been pleased at this display of public confidence in them and have proceeded with their job, usually with real competence but occasionally without benefit of direct and constant communication with their community "constituents."

Yet, the schools in a democracy must continue to obtain their direction from the people they serve. This direction finds its source not only in laws but in the traditions and culture of the people themselves. As the task facing education grows more complicated, more and more of the decisions affecting a community's schools will have to be worked out cooperatively by its professional educators *and* its citizens.[1] This is a point where pioneering must now be done.

Role of the Professional Educator

Emphasis upon the need for participation in educational planning by citizens outside the educational profession, however, in no way reduces the importance of the role played by experts within the profession—teachers, staff members, research workers, and administrators. The opposite is the case; but it is only with the cooperation of informed citizens that policies can be developed which will allow expertness really to function.

Educational specialists and teachers are needed for two broad purposes and must serve in two broad areas. In the first place, the body of information regarding elementary school learning has

[1] Benjamin Fine, in *Our Children Are Cheated* (Henry Holt and Co., New York, 1947), presents information of great value to parents, citizens, and teachers as they seek to build a basis for working together to improve education.

become so great that ability and training of a high order are required to make use of it. Since each child and each learning situation is different from all others, extraordinary discretion and judgment are needed to apply this available knowledge to real situations. Much of teaching, therefore, has become somewhat like diagnosing the maladies of and prescribing for individual patients, with highly technical judgments being made in the light of a great store of professional information.

In the second place, educational "know-how" has progressed to the point where problems previously not recognized have now become obvious. The problem of the intelligent child who cannot read is an example. The problem of the emotional shock and consequent learning difficulties that result from rejection of a pupil by his group need further study. The effect on pupils of insecure teachers who gain status for themselves through dominating children needs further exploration. In short, there has been opened up for the whole profession a profusion of problems, solutions to which will enable teachers to reach degrees of humane efficiency not possible today. These problems will be solved in part by research technicians in the laboratories and laboratory schools, but the conviction is becoming stronger among educators that much of the research will be action-research in the classrooms of the country, and that much of the experimentation will be joint activity between the teacher-researcher and the specialist. This type of progress will necessitate the development and use of many exciting new techniques, of which new means for measurement of educational growth will be among the most helpful and dramatic.

Need for Experimentation

Some parents who have children in today's schools object to the experimental projects occasionally undertaken by them. These parents say that they are not rearing their children to be "guinea pigs for fantastic research projects." This is one of the points at which the need for intelligent participation by citizens in educational policy-making becomes obvious.

It is perfectly clear that "fantastic" and unrewarding experimentation should not be encouraged. The problem is to know what is fantastic and unrewarding. Certain Indian tribes will not permit white doctors to administer penicillin for pneumonia. To them penicillin (or any similar new treatment) is a fantastic cure. They will believe so until they gain faith in the doctors or actually see evidence that the treatment is effective. Until they do, they are behaving in accordance with common sense and should not be condemned for a caution that they consider necessary.

Competent educators make sure that educational experimentation is carefully done and that procedures are thoroughly assessed and reassessed before broad action is taken. The results of the survey reported later in this volume show rather clearly that *there is no broad movement* to rush madly into types of education for which there is no demonstrated need and no instructional practices. These results may make some readers feel that there is a regrettable disposition to linger too long before adopting new and better educational methods.

The great bulk or the needed research and experimentation in education is, of course, down-to-earth and unexciting—except to the specialist who sees how much it may do to improve the education of children. Much of it involves the measurement and comparison of the day-to-day outcomes of learning situations. Most of the needed research will not disturb citizens, parents, or teachers, particularly if the purposes and procedures are even briefly reviewed. For example, careful studies of differences in various reading skills may show that girls are superior to boys of the same intelligence and socioeconomic status at certain age-grade levels. If such differences are found, then theories must be built to explain why they exist and to suggest what, if anything, should be done about them. Such theorizing should lead to further experimentation involving further evaluation and, ultimately, to better learning for boys and girls.

The important thing for both educators and parents to remember with respect to experimentation in the schools is that carefully planned experiments with children in actual schoolroom situations can lead to improvement of the methods and materials

of instruction. Anything less runs the danger of being theoretical and unreal. So educators do have a responsibility to plan instructional experimentation carefully, with full cognizance of the effects it may have on the children involved, and to work with parents and citizens on the purposes, methods, and hoped-for outcomes of the experiments. Furthermore, the interested lay public, with full information about the experimental work and approval of its purposes, has a responsibility to assist school people in every practicable way. The experimental approach, well planned by educators and supported with understanding by the "constituents" of the school, is the path to better and better education for our boys and girls.

There is sometimes an unfortunate schism in education between the theorists and researchers, on the one hand, and the practitioners, the teachers, supervisors, and principals on the other. People in the schools are frequently heard to say that research and theory are all very well, but the theorists had better go into the schools and see what the real problems are when a teacher is faced by 35 pupils. This, of course, is a misunderstanding both of theory and of practice. Probably nothing of any consequence that is good has appeared in our civic institutions or in our technology in the past hundred years that has not been grounded in the work of some theorist or researcher. As our world becomes more specialized, research and theory become specialized, too. The practitioner is at fault, either to accept theory uncritically *or* to discard it flatly. The approach to theory and suggestive research should be in the scientific experimental attitude. Much theory, even if supported by controlled research and by some action-research in the practical school situation, will still need careful adjustment to the wide variety of problems that arise in thousands of classrooms. It will still stand in need of refinement. Sometimes theory remains plain theory, as opposed to practice, for a long time mainly because practitioners lack the gumption to put it into practice. Increasingly, there will need to be close cooperation between teacher and research worker, and their cooperative endeavors will require the support of parents and citizens.

Differences of Opinion

"How can I place faith in the educational experts when they cannot agree among themselves?" Such sentiments are not always expressed aloud, but they are implicit in many of the questions and remarks about what goes on in the elementary schools. Yet, as the results of this survey show, there is far more agreement among the experts as to desirable classroom practices than is popularly (or even professionally) supposed. The same thing is true of expert opinion on educational theory.

There is a place in every developing science for differences of opinion. In fact, scientific theory places high value on the production of many imaginative, creative hypotheses. Students of the history of science will recall that as knowledge has developed, its unfolding edge has been the focus of great controversy. They will recall that as knowledge accumulated arguments had a way of resolving themselves into accepted professional opinion, with new and more advanced areas of controversy arising at the same time. Sometimes new knowledge makes it necessary for scientists to revise "laws" that have been accepted for decades. Frequently these old generalizations remain perfectly valid for application in the areas where they were first developed, but lack validity (being, in fact, erroneous) in wider and newer applications.

A lay person would get a distorted picture of the medical profession by listening to a legislative hearing on the issue of antivivisection, or even by listening at a medical convention to advocates of opposing theories concerning the cause and treatment of the common cold. He might come away from the first with an idea that physicians and surgeons are fiends, more interested in torture and bizarre extirpation than in the kind and helpful care of ailing human beings. From the second meeting, he might conclude that doctors are so ignorant of even the most common diseases that their help is of questionable worth in any contingency. Both of these conclusions would be far from the truth.

There are many controversies in education. Some of them deal with things about which we know little or nothing, and about which we must expand our knowledge in order to improve the

schools. Many of the controversies and arguments have meaning only for educators themselves, and are a necessary part of the preliminary stage in setting out to find new knowledge. But in a number of the unsettled problems that center in the schools, the interested public can and should join the "experts" in reaching workable conclusions. The principal problem here is that of determining the ultimate goals of school instruction. This is where the citizens of a community can exert their most direct and helpful influence on their schools—and where this report will have its most valued use.

Fundamental Problems

Whenever we refer to anything as *better*, we move into the area of making judgments about "values." What is "better" education? Some may say that it is education by which children learn more and learn it so that it sticks. Learn more about what? Learn to do what? Learn to behave how?

Should all people learn the same things? How shall we select what should be learned? How much of the total job of education should the schools assume? How much *must* they assume? No matter how one defines "better" elementary education, a host of questions arise. To the extent that decisions involving such questions affect the classroom and show up in the changed behavior of children, they are the concern of all of us—educators and noneducators alike.

Any theory about education is closely related to the purposes of education. In America we are determined that these purposes be in accordance with our democratic traditions, placing emphasis upon the unique and precious nature of each human being. The fundamental aims and objectives of education in this country, therefore, must find their source and their strength in the minds and hearts of the people who are served by the schools. Beyond this, there are practical considerations involved in selecting aims and objectives. We must have means at hand to determine whether our objectives can be attained, whether the techniques by which we strive to attain them are effective, and whether all possibilities for improvement have been adequately explored.

PLAN AND METHOD OF THE STUDY

What has been said so far is by way of background. Popular faith in education characterizes our culture. The changes taking place in our life are reflected in the practices of the schools and in current attitudes toward the schools. The questions that are asked today are not new. Education has a long history and only recently have the basic sciences underlying it become sufficiently well developed to provide some reliable guideposts for practice. It seems appropriate at this time that we make careful studies, designed to take stock of elementary education and to plan for its improvement and efficiency.

Origin of the Study

As explained in the Foreword by Henry Chauncey, this study was initiated and sponsored by Russell Sage Foundation, Educational Testing Service, the United States Office of Education, and the Department of Elementary School Principals of the National Education Association. Officers and members of the groups that set the project in motion had some very practical ideas.

They knew that there were many statements about *some* of the goals of education, but that there were few inclusive statements. Many statements, made in the form of general objectives, were so broad in character as to be susceptible to various interpretations. They wanted to know the degree to which the goals of elementary education could be stated definitely and concretely.

There was a further practical desire to measure and assess what the elementary schools are doing. There are today many very good measuring devices. These devices do not measure all the things that the schools are attempting to do, however, nor are they always accompanied by acceptable means of evaluating what they measure. This study was sponsored, in large part, to provide a basis for further work in the measurement and evaluation of elementary education.

These two aims—(1) to define the goals, and (2) to develop new and better instruments with which to measure and evaluate the achievement of the goals—cannot be considered independently. Both aims should be held in mind in order to provide concrete and helpful information to the four groups that are important to the continued progress of elementary education. These groups are:

1. The general public
2. Teachers, supervisors, and administrators in the schools
3. Teachers in teacher-education institutions
4. Research workers in measurement, evaluation, learning, subject-matter areas

A primary purpose of this study in attempting an authoritative statement is to provide points of departure for intelligent and well-directed research. This research should be directed toward the measurable aspects of many of the goals, determining their difficulty, and assessing the effectiveness of the efforts of schools to obtain them. Many of these possibilities are discussed in later sections on measurement and evaluation.

Plan of the Study

As an initial step the four sponsoring agencies invited outstanding educators from all sections of the country to become members of a committee and to help describe goals for elementary education. Commonly referred to as the Mid-Century Committee on Outcomes in Elementary Education, the Committee was made up of three different groups, each related to the others but with a specialized function, as described in Dr. Chauncey's Foreword.

Operation of the Study

It was decided that each consultant should be asked to work as an individual, without conference with the other members.[1] In this way there would be greater opportunity to secure various viewpoints and unprejudiced statements. In order to ensure the

[1] *The Supplement* contains copies of the actual instructions given to the consultants and the critics.

greatest freedom for participants, the consultants were not restricted or assigned to special limited areas, such as arithmetic, science, spelling, and the like. Instead, they were divided into only two groups. One group was asked to make its outlines in terms of the *intellectual competence and subject-matter learning* of the pupils. The other group was asked to deal with the factors involved in *personal development and social maturation.* Two of the consultants served as coordinators and summarized the contributions of their respective groups. Thus, the consultants produced two groups of statements and two summaries. Some of the critics and readers regretted this division into "intellectual" factors and "growth" factors, saying that the two cannot be separated in reference to any specific child or any specific learning situation. This is not to be denied. The division was made in order to ensure a complete and well-rounded set of goals, not to set one against the other or to imply any merit in considering the one separately from the other. In the summary of the goals, no distinction is made between the two.

In order that the consultants might group their recommendations in units of roughly the same size with relation to the eight- or nine-year growth period that constitutes the elementary school age, it was thought wise to suggest use of a common growth scale. The scale that was suggested broke the total period quite arbitrarily into three equal time units roughly equivalent to the organization of the elementary school. The consultants were asked to submit statements of the goals to be sought by the *end* of each time unit. The critical points on this scale—the points at which the recommendations as to outcomes would apply—are:

1. *End of the primary grades period* (Kindergarten through Grade III), at which point the chronological ages generally are from 8 years, 9 months to 9 years, 3 months.
2. *End of the intermediate grades period* (Grades IV–VI inclusive), at which point the chronological ages are generally from 11 years, 9 months to 12 years, 3 months.
3. *End of the upper grades period* (Grades VII–IX inclusive), at which point the chronological ages are generally from 14 years, 9 months to 15 years, 3 months.

By the development of statements in accordance with this scale, the consultants avoided the labor of year-by-year goals and yet broke the total elementary school period into units small enough to be useful for instructional and evaluation purposes.

The outcomes of schooling are myriad. A description of all of them, both those sought and those incidental to school experience, would be a monumental task and not an altogether fruitful one. The Mid-Century Committee therefore concentrated upon those outcomes which are important enough, in the opinion of the consultants, to warrant some direct effort on the part of the school and the teacher. The criterion for inclusion of any stated goal was: *Is it of sufficient importance to the individual pupil, or to society, to have an acknowledged place in the regular program of the school?*

After the statements were received from the consultants, they were sent to the critics to be evaluated. Five critics reviewed the work of each of the consultants in the first group discussed; and five other critics reviewed that of the second group of consultants.

The critics were asked to be perfectly candid in their evaluation of the goals set forth by the consultants. Where they disagreed, they were asked to say why. Where they strongly agreed, they were asked to comment on that, too. They were asked to assign to each recommendation a code letter and number indicating their evaluation of it. The code designation was to be written on the margin of the page, where it might easily be identified. In the suggested code, "A" was used for agreement and "D" for disagreement, with numbers added to indicate variation in the extent of acceptance or rejection. Meanings were assigned to six code designations as follows:

A1—Agree. This should be one of the outcomes to receive major emphasis in public elementary schools.

A2—Agree. This outcome should receive at least secondary emphasis.

A3—Agree. May be desirable, but its importance is doubtful.

D1—Disagree. This outcome, even if desirable, should not be the responsibility of the school.

D2—Disagree. This outcome is desirable, but requires school facilities or teacher training or parent education not now generally available.

D3—Disagree. This should be an outcome, but at a different level from that recommended.

TABLE 1. ACCEPTANCE OR REJECTION BY THE CRITICS OF THE GOALS PRESENTED BY INDIVIDUAL CONSULTANTS[a]

Consultants	Goal recommendations	Goal considerations							
		Acceptances, by grade of acceptance[b]			Rejections, by grade of rejection[c]			Resulting in no rating	Total[d]
		A1	A2	A3	D1	D2	D3		
Group I									
Glenn O. Blough	52	227	11	1	1	–	16	4	260
Luella Cole	286	887	79	45	1	20	58	340	1,430
John J. DeBoer	324	1,378	82	10	19	12	109	10	1,620
Gertrude Hildreth	340	1,384	109	45	–	12	118	32	1,700
H. G. Wheat	237	982	57	32	2	4	83	25	1,185
Subtotal	1,239	4,858	338	133	23	48	384	411	6,195
Group II									
Robert J. Havighurst	28	59	1	–	–	–	–	80	140
Harold E. Jones	35	107	11	2	–	–	–	55	175
Alice V. Keliher	177	650	116	27	34	9	37	12	885
Willard G. Olson	155	530	90	27	49	34	41	4	775
Robert R. Sears	83	258	46	6	6	1	31	67	415
Ruth Strang	222	795	96	16	33	59	78	33	1,110
Subtotal	700	2,399	360	78	122	103	187	251	3,500
Total	1,939	7,257	698	211	145	151	571	662	9,695

[a] Each of the five Group I critics considered (evaluated) all the recommendations made by five Group I consultants, or a total of 1,239 recommendations or "goals." Each of the five Group II critics considered all the recommendations made by six Group II consultants, or a total of 700 recommendations. Thus, 6,195 considerations were made by five Group I critics, and 3,500 by five Group II critics, and in all 9,695 considerations were made.

[b] Agreements with goal recommendations were classified by the critics in three grades:

A1 Goals regarded as deserving major emphasis in the schools
A2 Goals regarded as deserving at least secondary emphasis
A3 Goals regarded as only possibly desirable

See discussion in text.

[c] Disagreements with goal recommendations were also classified in three grades:

D1 Goals not regarded as the responsibility of the school
D2 Goals regarded as desirable but requiring facilities not generally available
D3 Goals regarded as desirable, but not at the level recommended

[d] Goal considerations equal recommendations of each consultant times five, since each of five critics considered the recommendations of each consultant in his group.

Each critic was also asked to write a summary of his criticisms if he felt inclined to do so. This summary might contain additional goals that should be considered. It might contain suggestions for making the list useful in practical ways for school people. Six of the critics prepared additional summary papers in accordance with one or more of these suggestions. The evaluations of the critics were taken into careful account.

TABLE 2. ACCEPTANCE OR REJECTION BY INDIVIDUAL CRITICS OF THE GOALS PRESENTED BY THE CONSULTANTS[a]

Critics	Goal considerations							
	Acceptances, by grade of acceptance[b]			Rejections, by grade of rejection[c]			Resulting in no rating	Total[d]
	A1	A2	A3	D1	D2	D3		
Group I								
Mary D. Barnes	813	146	33	2	5	60	180	1,239
Charles Coxe	1,001	2	2	–	6	18	210	1,239
Eva M. Dratz	1,076	–	40	3	4	96	20	1,239
Margaret J. Hamilton	994	29	21	6	31	158	–	1,239
Frances E. Noll	974	161	37	12	2	52	1	1,239
Subtotal	4,858	338	133	23	48	384	411	6,195
Group II								
W. Paul Allen	442	26	15	44	43	94	36	700
Katherine Glendinning	473	63	7	7	34	41	75	700
Douglass Harlan	540	68	21	24	1	21	25	700
Emily H. Surtees	413	185	30	19	12	28	13	700
Hazel Van Cleve	531	18	5	28	13	3	102	700
Subtotal	2,399	360	78	122	103	187	251	3,500
Total	7,257	698	211	145	151	571	662	9,695

For footnotes see Table 1.

The goals presented by each consultant[1] were numbered consecutively and the ratings given to each item by the various critics were tabulated. In this way it was possible to obtain a rough measure of the critics' acceptance of the consultants' recommendations. Table 1 indicates the degree of acceptance by the critics of the recommendations made by the consultants. It is important to note that a majority of each consultant's rated recommendations received the A1 response ("this outcome should receive major emphasis in the public elementary schools") from the critics.

[1] Dr. G. Lester Anderson acted as a coordinator and did not himself submit goal recommendations. Dr. Douglas M. More collaborated in the recommendations of Dr. Havighurst.

CURRICULUM AREAS	TYPES OF BEHAVIORAL CHANGE				DETERMINING CONDITIONS
	A. KNOWLEDGE AND UNDERSTANDING	B. SKILL AND COMPETENCE	C. ATTITUDE AND INTEREST	D. ACTION PATTERN	
1. PHYSICAL DEVELOPMENT, HEALTH, BODY CARE	*52*	*54*	*55*	*56*	*57*
2. INDIVIDUAL SOCIAL AND EMOTIONAL DEVELOPMENT	*60*	*61*	*62*	*64*	*66*
3. ETHICAL BEHAVIOR, STANDARDS, VALUES	*68*	*69*	*70*	*71*	*72*
4. SOCIAL RELATIONS	*73*	*74*	*75*	*76*	*78*
5. THE SOCIAL WORLD	*80*	*82*	*83*	*84*	*85*
6. THE PHYSICAL WORLD	*86*	*89*	*90*	*91*	*93*
7. ESTHETIC DEVELOPMENT	*95*	*97*	*99*	*100*	*100*
8. COMMUNICATION	*102*	*104*	*110*	*111*	*112*
9. QUANTITATIVE RELATIONSHIPS	*113*	*115*	*117*	*117*	*118*

CHART 1. GRID FOR THE ORGANIZATION OF GOAL RECOMMENDATIONS
Figures in body of chart refer to pages in the book where discussion begins.

Table 2, showing the breakdown of ratings given by each critic, indicates to some extent the "agreeableness" of the critics as individuals and as a group.

Organization of Results

When the Committee of Consultants and the Committee of Critics completed their work, the Survey Committee made an outline, or framework, within which the present report should be submitted. This outline is referred to throughout the study as a "grid." The grid form of the outline is illustrated in Chart 1, in which the cells of the grid have been used to present references to the pages of the report where specific goals are discussed. Thus, the grid may serve as an index for finding the material in Part Two.

The goals that are to be outlined later may be more readily understood if the grid arrangement is clearly visualized. The grid has 9 horizontal rows and 5 vertical columns. The horizontal rows provide for notations concerning 9 broad areas of elementary learning: (1) physical development, health, and body care, (2) individual social and emotional development, (3) ethical behavior, standards, values, (4) social relations, (5) the social world, (6) the physical world, (7) esthetic development, (8) communication, and (9) quantitative relationships. The 5 vertical columns divide each of the 9 areas into separate subdivisions for items that specify: (A) knowledge and understanding, (B) skill and competence, (C) attitude and interest, (D) action pattern, and (E) determining conditions. Thus, the grid has 45 spaces, with 5 subdivisions under each of 9 areas.

Despite the logic of any such grid, or outline of behavior and learning materials, there will always be overlapping and duplication between subdivisions. Some of this is due to the impossibility of dividing and categorizing a learning activity into its various parts. Some of it is due to the philosophical or personal predilections of individual scholars. For our purposes these divisions do not need to be "watertight." Our concern is that the goals of education be attended to and that the breadth of opportunities be somewhat obvious.

In the first broad area, that of physical development, health, and body care, the first column may be conceived as providing space for the things that average children should *know* and *understand*. As used here, these words refer to things that are memorized, or that are understood so well that they can be easily recalled. The second column provides space for *skills* or *competences*, the skills that average children should be able to use without careful thought and planning, and the intellectual competences that children should be able to exercise in making decisions and judgments, in being resourceful, in meeting difficult problems, in examining new and difficult data, and so on. The third column provides for items concerned with the basic needs and drives of human beings—the exercise of will, the play of emotion—as these are shown in *interests* and *attitudes*. *Action patterns* refer to broad generalized ways of behaving, such as ways of responding to problem situations through the union of intelligence with good working habits and scientific methods of thinking.

Since the schools represent only one of many forces that mold and change or limit the young learner, it was found necessary to add a fifth column, *determining conditions*. The factors mentioned in this column cannot properly be called outcomes in the sense that the schools and society strive to bring them about, for only occasionally and over long periods of time may some of them be indirectly affected by what goes on in the schools or the community. More than anything else, they represent the biological and sociological context in which children and the schools carry on together. The references that will be found in this column are not meant to be inclusive.[1] Their purpose is to suggest the complexity and variability of the forces that play constantly upon the child. The significance of many of these materials will be discussed at greater length in later chapters.

Various outcomes could and sometimes do repeat themselves in two or more of the nine selected areas. For example, an upper-grade outcome under knowledge and understanding of the social

[1] An inclusive and distinctive treatment of this problem is to be found in *Human Development and Education* by Robert J. Havighurst, Longmans, Green and Co., New York, 1953.

world (5A in the grid) is: "He can interpret graphs, maps, charts, and other symbols of social studies that appear in his reading." This would be placed just as logically under 9A, knowledge and understanding of quantitative relationships, or under 8A, knowledge and understanding in communication (reading). Likewise, the same outcome could well appear in two or more of the first four vertical columns that represent types of behavioral change. The phrase "behavioral change" follows from the definition of learning as a change in behavior, using behavior in the broad sense of including all the things that the human being does when thinking, feeling, and acting. Education is designed to bring about desirable behavioral changes.

Factors sometimes referred to as drive, determination, "the disposition to do," can be seen both under attitudes and interests and under action patterns.

The consultants prepared their lists of outcomes in terms of three levels of growth and achievement. The first level conforms approximately to the end of the third grade, the second level to the end of the sixth grade, and the third level to the end of the ninth grade. In Part Two, recommended outcomes at these three levels are presented in detail. Though the consultants were asked to express goals in terms of what might be expected of an *average* child at each of the three levels, there was a definite feeling on the part of many of the consultants, and on the part of most of the critics, that many of the outcomes are too difficult to expect of average children; that they are, in fact, outcomes that will normally be achieved only by superior children or by children favored in their home and in their social experience outside the school. This is not a devastating criticism. The listed outcomes can still be regarded as authoritative opinion. So long as individual schools and individual teachers adjust procedures to their own classes and to the individual children within them—and there is no other defensible way to educate children—there will be this tendency to regard local experience as typical of what may be expected in other schools.

The comments of many of the consultants and critics indicate that the grid arrangement is too rigid and precise, even when

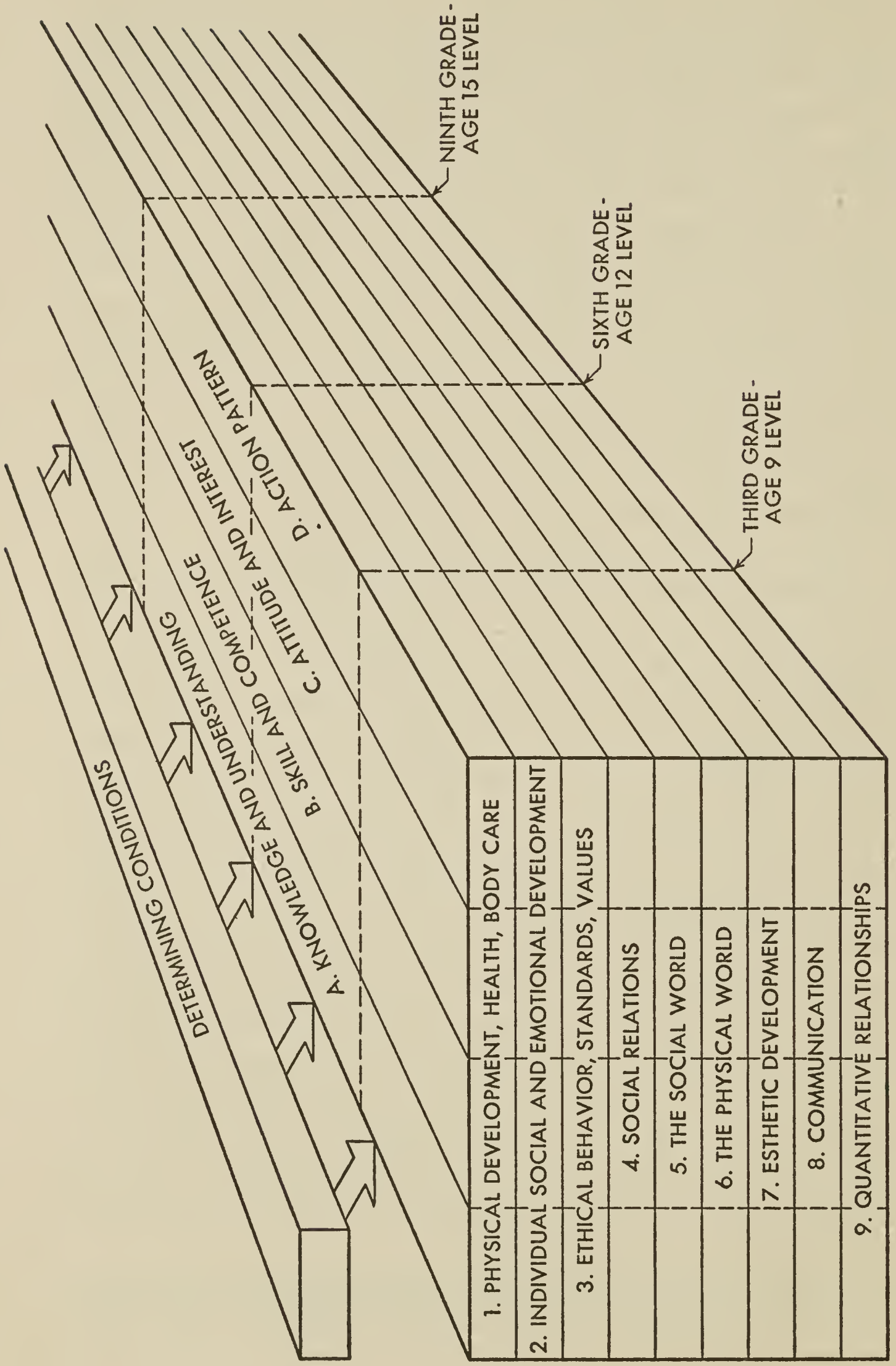

CHART 2. THE BEHAVIORAL CONTINUUM—BROAD CURRICULUM AREAS INTERSECTING MAJOR BEHAVIOR CATEGORIES

reduced to three division points instead of being left at the yearly division points typical of the elementary schools as we know them.

The consultants knew that outcomes are not achieved by all children at the same rate. They knew that some children reach higher levels in achievement than are possible for other children. They knew, furthermore, that levels of achievement are not always marked by complete *mastery* of a skill or by complete *understanding* of an idea, but rather that achievement often means a relative degree or stage of mastery and understanding and power. Hence, the grid should really be visualized as it is shown in Chart 2.

Here an attempt is made to indicate how the grid appears if growth, development, maturation, and learning are regarded as continuums in all the subdivisions. If the results of the study are pictured in this way, it is easier to conceive of outcomes in terms of the range of abilities within a group of children, or among traits in one child at each of three levels.

Chart 3 shows the three points at which the consultants "cut through" the learning continuum to sample it and to show what was going on in the attainment of goals at those points. Thus, it should be regarded as being made up of three cross-sections or slices of the continuums in Chart 2. The reader should have Chart 2 in mind when examining Chart 3, since the former represents more clearly what the levels actually mean in the learning of groups of children.

After the grid had been prepared, the goals set forth by the consultants and the evaluations of the critics were taken into careful account. Individual cards were prepared for each of 1,939 specific items recommended by the consultants. The rating given to each item by each critic was placed upon this card. Each card also showed the content of the critic's marginal notes. The cards were sorted according to the 45 subdivisions in the grid and were used in preparing the summary of the work of the consultants and the critics, which is presented in Part Two. There were 9,695 goal considerations made by the critics, resulting in 9,033 specific ratings. In 662 instances a critic's evaluation of a recommended goal resulted in "no rating," as is indicated in Tables 1 and 2.

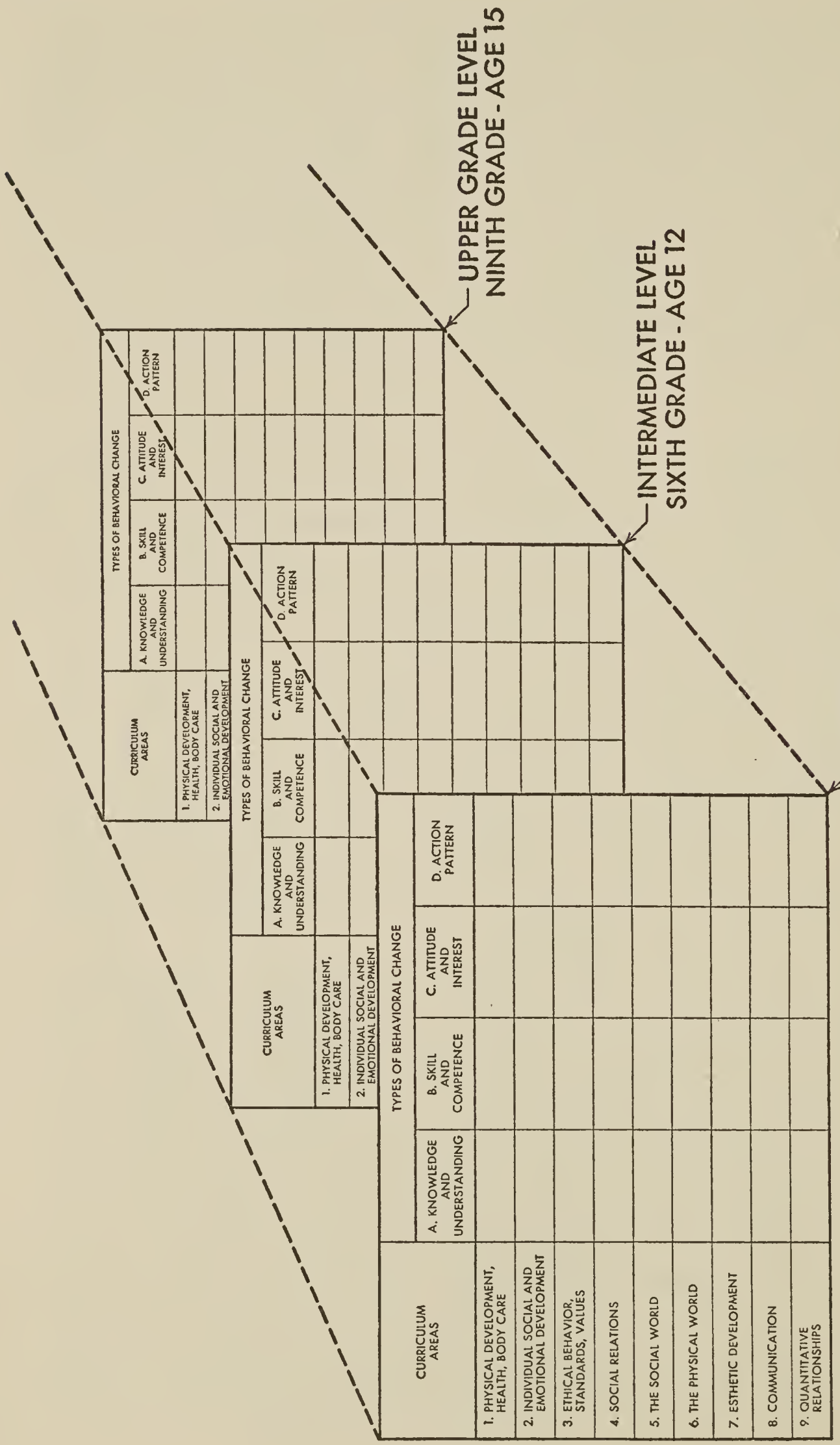

CHART 3. THE GRID AT THREE CROSS-SECTIONS OF THE EDUCATIONAL CONTINUUM

After all the tabulating and arranging was completed, preliminary drafts of this report and of the supplementary volume were prepared. The preliminary draft of the report was multilithed, bound, and sent to 94 readers who had agreed to review part or all of it critically. In addition to 32 members of the original committee, this group was composed of 27 staff members of Educational Testing Service and 35 outstanding elementary and college educators throughout the country. Ninety-two of those persons responded with criticisms and suggestions, which were of great assistance in bringing the manuscript to completion. The reviewers are identified in the list appended to this report.

Part Two

RECOMMENDED GOALS FOR THE ELEMENTARY SCHOOL YEARS

Parents, and others interested in the education of boys and girls, ask each other and the children's teachers a great variety of pertinent questions about schools and schooling. If a condensed summary were made of these questions, it might look something like this:

A. What is not done that should be done?
B. What is done that should not be done?
C. What is not known that can and should be found out?
D. How can I know for sure what is now being planned and done?

1. About the health, safety, and physical development of our children?
2. About the social and emotional development of children?
3. About the ethical behavior, personal standards, and moral values of children?
4. About the ability of children to assume leadership, to choose leaders wisely, to work in teams in their neighborhoods, communities, and states?
5. About producing citizens who are valuable in their home, school, and community today, and who will be good neighbors, good community members, and good American citizens in the world of tomorrow?
6. About growth in knowledge of the physical world of plants and animals, nature, science, conservation, machines?
7. About the esthetic development of children—both as consumers and producers, as enjoyers and creators—in

art, music, literature, drama, radio and television, crafts, home and community beautification?

8. About competence in communication with other people through speaking, listening, reading, and writing?
9. About the ability of children to count, measure, compute, estimate, and reason as they think quantitatively?

Each of the foregoing numbered questions covers a major category of the educational goals many schools strive to attain. For each of the major categories there are, too, a number of subquestions:

a. What should children know, remember, understand?
b. What skills should they perfect to the point of performance with little pause for thought?
c. What competences should they have in the way of solving problems, thinking clearly on the basis of reliable evidence?
d. What attitudes and interests are most valuable?
e. What values should children hold?
f. What general habit patterns and what methods of attack on problems should be developed?
g. What are the limitations set by nature and culture that the schools (and the children) cannot be expected to overcome?

It is for the purpose of providing answers to some of these questions, and of helping teachers and parents to find answers to others, that the Mid-Century Committee has undertaken its survey and presented this report. And it is in the pattern of the questions above that the recommended goals of elementary schooling have been organized.

CHARACTERISTICS OF THE RECOMMENDED GOALS

Even a casual reading of the educational goals recommended here will reveal their broad scope and rich variety. Certainly there is no hint that the optimum results of education can be achieved without a sound core of knowledge, understanding, skill, and competence. There is no hint, either, that elementary education should neglect the development of interests, attitudes,

and ideals that are wholesome in terms of our democratic ideology and rich cultural tradition. There is ample evidence that the consultants and critics are very much aware of the effects on the task of education of social conditions in the home, in the community, and in the school. They are aware of the effects of the child's physical development toward maturity and of the physiological background of his learning and his personality.

A more analytical reading of the suggested outcomes will reveal certain unavoidable inconsistencies in emphasis, content, and presentation. It would be possible to edit the recommendations so as to present a highly uniform outline, but to do so would necessitate adoption of the basic viewpoint of one or the other of the various consultants, or the presentation of a single editorial viewpoint. This was not the intent in this part of the study. It would be possible to follow a consistent order of presentation within each subdivision of the outline, but this would tend to highlight certain outcomes at the expense of others. The outline, in large part, attempts to present the outcomes upon which there was evidence of agreement, although this cannot be accurately determined in all cases.

Analysis will reveal that some of the items are very specific in nature, while others are broad, general, abstract, and sometimes rather vague. The degree of specificity of outcomes is reduced in some cases through the use of terms that represent progress along a continuum rather than a point on a continuum. These terms are sometimes expressive of a value, sometimes of growth or development and sometimes of difficulty. They are the outcomes that contain expressions such as "improves," "grows," "begins," or "makes progress in." When one says, "He is beginning to understand something of the causes and effects of war," the reader has no very clear idea how much of a beginning the child may have made.

Some specific goals are introduced for illustrative purposes and are meant to represent a cluster of items, while others are broadly inclusive in nature or suggestive of unnamed items. The former can be seen in, "He should be able to answer questions such as: What happens to water when it freezes? What makes the rain

fall? Why do we have dew in the morning?" The latter can be seen in, "He should use simple tools correctly, for their intended purpose."

Many of the goals are made up of what are sometimes referred to as the "essentials," the "fundamentals," the "subject-matter content," while others refer to broad generalizations, understandings, habits of work, social attitudes, and others of a like kind.

Some items refer to responses that children have memorized (learned to recite or to perform without thinking), while others refer to insights and understandings without emphasis upon remembering facts. This difference is seen in the item, "He can spell 400 common one- and two-syllable words," contrasted with, "He knows some ways of verifying data to distinguish between fact and opinion." There are items that demand an ability to use knowledge constructively in meeting new situations and problems. The latter may be seen on the primary level in, "He employs experimental procedures in solving real life problems around him dealing with the best way of raising plants, of caring for animals or making an aquarium or terrarium, of finding out what makes a cool jar 'sweat,' or what is the temperature of boiling water."

There is obvious contrast between items emphasizing development of the capacities and potentialities of the child as an individual, and other items emphasizing social or group skills. Some outcomes refer to materials that are readily identifiable in terms of the conventional subjects taught in the elementary schools, while others are hard to identify with any single or specific subject area. Some items distinguish between the outcomes that may be expected from boys and those that may be expected from girls. Some of these are too obvious to be questioned, resulting from biological and cultural factors which are generally known, but the factors involved in others are more subtle and can be described more easily than they can be explained. Basic differences in philosophical and scientific opinion that affect items in this outline of outcomes will be referred to later in order that the implications of this study for further progress in elementary education may be seen more clearly. The contrasts are not pointed out

here to imply that they are viewpoints between which readers must make a choice. They are, rather, contrasts between the types of goals that are considered important.

The goals set for elementary education in this report are rigorous and difficult. Many of the consultants and critics, upon viewing a preliminary draft of the study, were impressed with this difficulty. This is easy to understand. In the first place, each of the consultants was asked to outline the goals, the outcomes, that he considered attainable by average children. In this process, inevitably one consultant would stress goals that others did not mention or would place emphasis on a goal that another treated casually. The result was that *in combination* the number and difficulty of the goals became much greater than the list of any single consultant. Furthermore, the consultants, though asked to set down goals to be achieved by the *average* child, tended to set down what they thought would be *very successful* behavior for the average child.

Many consultants and critics and many readers of the preliminary draft feel that the goals have been set too high. So general is this feeling that it is necessary to preface the outline of the goals with this reminder. It is difficult in a statement of goals to distinguish among those that are now being achieved, those that are possible of achievement though not now being achieved, and those that it would be desirable to achieve though we are not sure of the difficulties that may stand in the way. We know, of course, that some children have very limited abilities and that goal-achievement for them will be limited in consequence. Other children will be highly intelligent and even the most difficult goals will be attained. It is in determining what average children may be expected to do in the achievement of goals that difficulties arise.

Concept of the "Average" Child

One of the significant aspects of the goals recommended by the consultants is, in G. Lester Anderson's words, "that they presume to be achievement norms (not standards) for average children at

three points . . ." on the educational continuum. Thus, they are closely related to what the consultants would consider the attainable objectives of elementary education for average children.

We know a great deal about "averages" as they apply to human beings. We know that an average child is a purely imaginary child. A child who might be at or near the average in one ability or characteristic may be far above or below the average in others. For example, a certain normal child, just finishing the third grade, may read with average third-grade ability. His all-round competence with numbers, however, may be strong fifth-grade ability or higher, while in language and spelling he may be about equal to the average of second-graders. Furthermore, in an average sixth grade there will be children who are reading only on the level of "average" second-graders and others who are reading with the ability of "average" tenth-graders. We know that such differences in ability will continue to show themselves regardless of any techniques that have yet been tried to eliminate them. If you put in the sixth grade only children with sixth-grade reading ability, you have children there who range in age from perhaps eight or nine to sixteen years. Though they would have somewhat similar reading ability, their reading interests would vary greatly. Furthermore, their abilities in arithmetic, geography, art and music, manipulative skill, and a host of other traits would continue to vary as much or almost as much as they did previously. Teachers and principals (or physicians and psychiatrists) cannot overcome these differences. They can only accept them and work with them intelligently.

The fact is that children entering school for the first time in kindergarten or first grade vary widely in their growth levels (as much as three or four years in mental age, for example). Since their growth rates generally vary in the same way, the range in individual differences continues to increase through their whole school careers.

No matter what human trait or characteristic one thinks of, he finds wide individual differences regarding it in any group of children or adults—height, weight, musical ability, pleasantness, gracefulness, skill with numbers, skill in communication, careful-

ness, moral principles, social consciousness, keenness of memory, sensory acuity, or what have you.[1]

The descriptions of goals for children at the end of the third, sixth, and ninth grades must be interpreted with these factors in mind, if they are to be meaningful. No one child is to be expected to achieve all the goals equally, or at the same rate. These are descriptions of goals that may be attainable by average children under optimum conditions. They are not minimal goals for all or for some.

Here and elsewhere throughout the study, we must keep our purpose in mind. It is not to solve questions or give definitive answers. It is to point out where we are in our thinking, in order that we may assess ourselves, plan further investigations, and, with better skill, educate the children who attend our schools.

Variations in Rates of Growth

In studying the outline of the goals, there is danger that the reader may conceive of progress by children toward the goals as a slow, steady, consistent process of growth. This is far too simple. Children are complicated psychological creatures. The fact is that progress is often slowed up by "plateau" periods of time when, regardless of effort on the part of the teacher, parent, or child himself, no progress at all is made. Frequently, too, there are periods when children actually seem to move away from the attainment of the goals. For example, a tendency to maintain fairly good personal "grooming" may be interrupted by periods of slovenliness and irresponsibility. Good handwriters may go through periods when handwriting becomes careless and illegible. Well-behaved children may temporarily exhibit periods of negativism and seeming lack of responsibility. A child who has been making "normal" progress in reading or arithmetic may hit a "plateau," during which time he makes no measurable progress. This may be followed by a period during which his previous lack

[1] A chapter entitled "There Is No Average Boy" in *Understanding Your Son's Adolescence* by J. Roswell Gallagher, M.D. (Little, Brown and Co., Boston, 1951), will not only help parents but also be of value to upper-grade teachers in understanding the wide variations in individual differences. This interesting and well-written book includes provocative sections on "Why Boys Fail" and on boys who "Can't Read, Can't Spell."

of progress is "caught up," all without any particular effort or pressure by teacher or parent. In other cases, careful diagnostic and remedial treatment may be necessary to bring about a resumption of what we now consider to be optimum progress. These illustrations point to the conclusion that progress in learning often may be sporadic and uneven.

Age-Grade Levels

In these outlines, we start with the learning and development of the child at about the age of nine, after he has been approximately four years in a school having a kindergarten, or about three years in a school that does not have one. We pick up his progress again three years later at the age of about twelve, after six or seven years in school. Finally, we examine the goals we have for him and the expectations set for him at about the age of fifteen, after nine or ten years in school. These three levels have been called the primary period, the intermediate period, and the upper-grade period. In this study we do not follow him beyond that point, for our concern here is with the beginning phases of his educational experience.

These three points in the development of the child must not be regarded as divisions in his growth or learning. The character and rate of his learning will not change as he passes these points. Neither should the three points be regarded as marking divisions in the "content" and "method" of education. The Survey Committee decided on these three points at which cross-sectional views of the process would be taken. Other points could have been chosen with equal logic. At each of these points we regard the learning and development of the child as an accumulation to that point. Thus, within each level there will be simple items that most children will encounter at the very start of the period and more difficult items that most children will reach at the very end of the period. Various items will overlap also from level to level, depending on the children and the classes involved. Some of the goals listed for the primary period may seem too mature and some listed for the upper-grade period may seem too long deferred. Some that are mentioned first in reference to the upper grades,

for example, may have been partially achieved much earlier without having reached proportions that justified earlier mention.

Limitations of the Goal Outline

Despite efforts to be objective, the goals outlined here are not to be regarded as the results of a poll of educational opinion, nor even as a limited poll of the consultants and critics participating in this study. That is not the intent of the study. It is something more than that. In making a single outline of the thinking of so many persons, it was necessary to use editorial judgment and discretion. What emerged is something different from a summary of the thinking of all who contributed. Within limits that are mentioned from time to time, it is an interpretation of the opinions of a large number of authorities when placed together in a single statement. Though it is a synthesis, with its sources in the thinking of distinguished authorities, it has been interpreted by the writer, and must be so considered.

The order in which the goals are presented is not significant. It was not possible to state goals in any order of ascending or descending importance. There is an attempt to group the goals in terms of intrinsic relationships. Actually, however, there were no data at hand by which to determine the relative importance of the goals or the relative importance ascribed to them by the various consultants and critics. Some of the goals will appeal to readers as being much more important than others. The only criterion employed was that the goal be important enough to merit mention and to justify attention by educators. The importance of some of the items lies in the fact that they illustrate types of learnings or stages or degrees of educational development rather than specific "mandatory" items to be learned.

There is no implication in the list of goals that they are the sole responsibility of the schools, of the home,[1] or of any other agency

[1] The part the home plays in doing the things that are often expected of the school comes out in Rhoda W. Bacmeister's *All in the Family*, Appleton-Century-Crofts, Inc., New York, 1951. It includes good chapters on "Children as Artists" and "What Is Discipline?" Discussing the child in relation to the school, the author says, "He may or may not 'meet second grade standards' by seven, though the better schools have very flexible standards." This book is written simply, but deals competently with problems of common concern to all parents and teachers.

or institution. They are goals for children during the elementary school years. Some of them are considered more commonly to be the direct responsibility of the schools than are others. All of them should be taken into account by those concerned with the education of children. The elementary schools have major contributions to make with respect to most of them, and significant contributions to make with respect to most of the rest.

In this chapter the desirable goals for an *imaginary* child are described. Naturally the obtuse, unsocial, or otherwise undesirable characteristics that children frequently exhibit are not mentioned (unless they follow from the material discussed under "Determining Conditions"). The inevitable result, in some sections particularly, is an impression that the children we are concerned with are the unreal paragons of virtue—Little Lord Fauntleroys and their feminine counterparts! This, of course, has not been the intention. No one should assume that Jimmy will never appear at table with dirty hands! The items may seem too idealistic, but the experienced reader will be able to interpret them realistically.

Added together, the goals probably become somewhat too difficult for average children. Perhaps these outcomes cannot be achieved by more than the most advanced 20 per cent of children. Whether or not 20 per cent is too high an estimate, the fact remains that most of the consultants and critics feel that in their combined form the goals are too difficult for average children. One of the research problems posed by this study is to determine the actual level of difficulty of the goals and the probable ranges of achievement in reaching them. For the present, they remain good goals toward which to work. Even the very advanced child, however, will seldom show an even front of attainment. He will be better, or more advanced, in the achievement of some goals than of others.

OUTLINE OF THE RECOMMENDED GOALS

1. Physical Development, Health, and Body Care

Physical development, health, and body care is a broad category as compared with the narrow conception of physiology and hygiene which it has replaced in the elementary school curriculum. Today it involves both health and safety. It includes individual health and the elementary aspects of public health. It includes physical education, personal grooming, safety, sportsmanship, and an understanding of growth and maturation. This section is closely related to various aspects of mental health that are stressed in the next section and in other sections. None of these "areas" can be isolated from the others. There is much overlapping between them. In a reading of these goals, the impression might be gained that children are to learn to observe rules about health and safety through developing a number of fears. This is not the intent of the consultants. A more positive and mentally healthful approach to the goals must be taken, by emphasizing the use as well as the misuse of facilities and resources, by stressing positive, forward looking factors instead of mere "do nots" and "refrain froms."

Throughout this chapter the first division in each of the nine sections is devoted to knowledge and understanding. The emphasis is on the basic essentials, the tools of learning themselves, without particular reference to why or how they are to be used. When it is said here that the child "knows" or "understands" something, these words must be interpreted as referring to children nine, twelve, or fifteen years of age. *Full* knowledge and understanding of many of these things sometimes does not occur for many years, if ever. Each item in a division must be considered in relation to all the other items in that division. It must be remembered that the *knowledge* type of outcome is not in itself sufficient to guarantee either habitual use of knowledge or use in the proper situations. Hence, following divisions stress other aspects of the goals.

A. Knowledge and Understanding

Primary Period (*First Level, End of Third Grade, Age About Nine Years*). The child knows that there is value in pure air, good food, proper exercise, clean hands, good health habits, adequate sleep, simple preventive medication. He knows how and when to brush his teeth and has some knowledge of how infections are spread. He practices safe behavior in crossing streets, and in using fire,

knives, machinery. He knows that animals and plants provide foods for man. He is aware of the dangers of strange dogs, animals in the zoo, unknown growing vegetables and berries. He knows that medicines, the unknown contents of bottles, or things that look edible may be poisonous. He knows the meaning of the skull and crossbones on bottles and boxes.

Intermediate Period (*Second Level, End of Sixth Grade, Age About Twelve Years*). He understands the need of community sanitation and health safeguards in his community; understands common fire hazards and how to prevent fires. He knows some of the simple rules for preventing the spread of infections, and the basic means of preserving personal health. He understands that there are individual differences in physical development and physiological maturity, and recognizes the period of rapid growth at the onset of adolescence. He understands that sleep and rest, good posture, exercise, fresh air, cleanliness, and proper food are important in promoting health and growth. He knows how to care for his teeth. He knows the food combinations and vitamins necessary for a wholesome meal. He knows the games played by children at his age and developmental level, and has reasonable skill in them. He knows how to handle safely the machines, appliances, and gadgets encountered in home and school living. He has learned the basic principles of first aid. In addition to the goals mentioned for the primary and intermediate levels, he goes on to further learning as rapidly and as thoroughly as he is able.

Upper-Grade Period (*Third Level, End of Ninth Grade, Age About Fifteen Years*). He knows some good illustrations of how scientific knowledge has improved personal and community health. He understands individual differences in physical growth, the physical and physiological changes of adolescence, and the major aspects of reproduction in humans. He has learned the correct names for the parts of the body. He is informed about the effects of alcohol and drugs on the body. He understands fatigue and the need for rest and sleep, and the value of healthy use of leisure time. Depending on locale, he knows safe behavior with boats, guns, fishing tackle, and archery equipment as well as with the more common play equipment.

B. Skill and Competence

The second division in each section of this chapter is concerned with skill and competence. Here the emphasis is on basic abilities. As in the division on knowledge and understanding, these are listed here without particular reference to why or how they are to be used. The goals are stated in terms of things the child can do. Many items will appear in different form under more than one of the various divisions, since the emphasis will vary. Thus, the knowledge or understanding of an item might appear in the first division, while skill and competence in its use would be stressed in this division.

Primary Period. In his play the child can skip, hop on one foot, climb, descend, jump, jump rope, suspend from bar, run with ease, and perform stunts appropriate for his age and grade. He identifies and can perform various steps in folk dances, imitative plays, circle games, and other group games. He skips to music in unison with others. He tries to use hands skillfully and to develop eye-hand coordination. He can throw and catch a large softball; build boats and houses of blocks; handle pencils and paint brushes; use hammer, saw, screw driver, broom, mop, dust brush, dust cloth. When climbing, he hangs on "tight." He cares for his own person: hair, teeth, nails, and skin. He dresses himself, managing shoelaces, buttons, zippers, and fasteners. He eats without undue spilling of food.

Intermediate Period. He can play the games and engage in the social activities appropriate to his age, sex, and social group. He can folk dance with figures and sets and with a variety of rhythmic steps and begins to develop skill in social dancing, in group and individual games, and in sports popular and proper in his community. Both boys and girls (girls earlier than boys) develop skills in personal grooming—combing and brushing hair, tying sashes and neckties, manicuring, and so on.

Increasing muscular dexterity is shown by girls in their skill in sewing and in handling cooking utensils, and by boys in using hammer, saw, screw driver, plane, square, chisel, brace and bit. Both boys and girls may show motor coordination in the camp skills—making beds, building fires, and so forth; in craft skills—

ceramics, metalwork, leatherwork, wood- and soap-carving, and in hobbies—airplane and boat models, erector sets, art kits.

Upper-Grade Period. The child knows elementary life-saving and safety precautions in water, and is able to administer common measures of first aid. He is learning social skills through dancing, tennis, swimming, or other activities appropriate to his community and society. Adult grace of movement and small muscle dexterity at work and play are beginning to replace pubescent awkwardness.

He is able to take part in everyday activities, using "good form" as a model; adjusts easily to those with more or less skill; and is able to compete informally in the social and learning activities of his class as well as formally in games and contests. He treats handicapped children as normal children, except for their handicaps.

C. Attitude and Interest

The third division discusses attitude and interest. Here the emphasis is on the inner child, his character and his motives and his personality. It is related to answering the question, "Does the child care?" There is much overlapping regarding attitudes and interests. In this chapter, for example, one whole section is devoted to ethical behavior, standards, values. There, attitudes and interests in many broad social and moral areas are emphasized. In addition, attitudes and interests are outlined in relation to each of the nine sections. This indicates the broad interrelationships among the goals, and among their various aspects. It illustrates, too, the concern of the consultants and critics with the fine ideals that have traditionally been held valuable for children to learn in the schools. These ideals are basic to what has been called "the disposition to do."

Primary Period. The child shows interest in his own growth and development; begins to accept his own physical and intellectual limitations, including handicaps that cannot be corrected. He is eager to learn new games and try them out, and plays games without fear. He has a broad and generalized eagerness to learn about the many interesting and stimulating things that concern his adjustment to life around him.

Intermediate Period. He approves of various health and safety rules. He enjoys many active games. He is interested in, and accepts, the bodily changes involving growth and sex development; has a desire to be attractive and clean (girls develop this desire earlier than boys). He is eager to be creative.

Upper-Grade Period. His own size, weight, color and physical characteristics, physical strengths, and limitations and differences from others are not sources of serious emotional disturbance. Boys enjoy rugged competitive sports involving strength, such as wrestling, boxing, tug-of-war, and races. The child shows concern for dress, appearance, grooming, and believes in protecting his own health as well as that of others. He adapts successfully to the changes in his body in the direction of physical maturity. He disapproves of the misuse of drugs.

D. Action Pattern

The fourth division describes the behavior of the child as he uses the knowledge and understanding, the skills and competences outlined in the first two divisions. These action patterns are the expression *in behavior* of the child's attitudes and interests as outlined in the third division. Thus, in this division, many of the items appearing in previous divisions are mentioned again in terms of their outcomes in the real behavior of the child. These are not only the things he knows and can do; they are things he normally does as a matter of course in the various situations he faces. Here we see him carry over his ideals, his "disposition to do." Actually, it is difficult and probably unnecessary in dealing with children to separate attitude and interest from action pattern beyond the point of understanding that either without the other is undependable or worthless. The division is for emphasis. Drive, determination, and the habit of doing should be initiated and directed by proper interests and attitudes.

Primary Period. The child is becoming used to washing his hands before eating and after going to the toilet. He is growing in habitual attention to personal cleanliness; covers nose and mouth with handkerchief when sneezing or coughing, keeps hands and objects out of mouth, uses only his own towels, toothbrush, and other personal articles. He eats wholesome food, chews it well, and accepts it in some variety. Although he ordinarily does not

require a nap during the day, he rests when tired, engages in quiet activities right after eating, and gets adequate sleep according to his needs. He habitually engages in active play. He stays away from other people when he or they have communicable diseases, and has no undue fear of a doctor, dentist, or nurse. He shows some concern for proper room temperature, good light for reading, and safety conditions where playing or working. He practices safe behavior with fire, with tools, with sharp objects, with matches, and with traffic, traffic signals, traffic regulations, bicycles, and public vehicles.

Intermediate Period. He assumes responsibility for the health and safety of himself and others at work and play. This includes attention to cleanliness, oral hygiene, diet, fresh air, rest, room temperature, and the use of handkerchiefs and tissues.

He practices for long periods to improve his game skills and his work skills. He engages in both active and sedentary recreation. He eats some of the basic foods each day.

Upper-Grade Period. He develops habits of grooming and body care in terms of a growing "taste," and selects appropriate clothes, in terms of the occasion as well as with regard to peer customs.[1]

He recognizes the desirability of seeing a physician and dentist periodically; of eating nutritious foods as a matter of habit; of eating without rushing or gulping; of heeding his own "fatigue" symptoms. There are, of course, wide permissive variations in these goals as they apply to different children.

He follows certain "training" rules for general physical fitness; maintains good posture when possible. He participates in active games even during the transition from childish to adult play forms.

E. Determining Conditions

The fifth and last division of each section discusses some of the determining conditions that surround the child and his learning. These are not properly to be considered goals. They are conditions that affect

[1] "Peer" is a word used in reference to groups of children with whom a child identifies himself and with whom he wishes to achieve or maintain social status.

(limit or increase) the possibilities of achieving the goals. They control the nature and extent of the educational experiences of children, and hence determine many of the directions and many of the limitations of his education. They spring from the psychobiological nature of the developing child in his physical and social environment. They particularly emphasize the social situation against which the goals must be considered. The reader must be aware of what is meant by determining conditions, so that he does not confuse them with the goals which are to be sought. He must be aware, too, that the determining conditions mentioned are meant to be suggestive rather than inclusive of all possible determinants.

Primary Period. Increasingly, our school systems feel responsible for providing conditions under which simple health rules can be learned at school in the early school years—often through the offices of the school nurse or doctor, but also in connection with the provision and use of equipment and facilities for play and rest, for sports and games, for nutrition and cleanliness, and so on. At the same time it must be remembered that the foundation for most of the patterns of behavior in caring for the body are established by family training in the earlier years.

Many of our outcomes are limited by the natural sequences in the development of the child's body, such as those that tend to establish hand-eye dominance, the need or lack of need for sleep during the day, and the need for and enjoyment of food.

Increasingly, our society tries to see that children have no remediable physical or mental defects. This effort will and should be intensified.

Intermediate Period. At about age twelve, relative physical maturity is very important. The child who matures one or two years earlier than his fellows has an advantage in learning to care for and use his body in an effective way. Extremely early maturers, however, may be handicapped. Puberty for boys is normally between twelve and fifteen, and somewhat earlier for girls. A spurt in growth (and a substantial increase in strength, particularly for boys) normally occurs at puberty.

The elementary school has a special responsibility for developing athletic skills adapted to individual needs. This implies a health education program, which includes health services, health

instruction, and physical activities. It takes into account individual differences in physique, physiological maturity, and physical ability, and implies a program that will give each pupil some skill which he can practice with satisfaction and which he can carry with him in some form into the later ages of adolescence. Emphasis on athletic skills adapted to individual needs and abilities implies that this outcome of elementary education should also provide values related to physical fitness, individual participation, and the social and leadership opportunities of playground games and intramural athletics. If, at later ages, these values contribute to de-emphasizing interscholastic athletics and spectator sports, they will assist in the wholesome development of physical activities that will contribute more to health and well-being in later adolescence and maturity.

Upper-Grade Period. At about age fifteen, boys increase in strength faster than do girls. In our modern society, motor training and skill are important in a different sense from that in which they have been important in the past. While walking and running may not be so crucial to modern survival as they once were, many muscle-eye coordinations, attentions, and manipulations are crucial in new ways. Moreover, proficiency in ordinary motor coordinations, such as those needed for good posture, walking, and running, as well as special athletic and artistic skills (dancing, music), can be very important in the personal and social growth of an adolescent. In our current educational plans, training in these motor activities is often left largely to chance or to private initiative and expense, except for the already skilled performers who are chosen to play on a team, in an orchestra, or in other units representing the school. If it is desirable for these best performers to receive special coaching in their activities, it is equally desirable and perhaps even more important to provide coaching for the lower ranking members of the group also.

2. Individual Social and Emotional Development

This category includes material that is commonly associated with mental health, emotional stability, and the growth of personality. In this section we find emphasis on such goals as understanding oneself

and evaluating oneself. It is closely related to the section on health and body care and to the section on ethical behavior, standards, values. In this area there is more difficulty in pointing out basic knowledge and skills than is true in some others, since the area itself is so much one of attitudes and interests. This section illustrates clearly that the goals are not the sole responsibility of the schools but are the result of many learning experiences, both within and outside the schools.

A. Knowledge and Understanding

Primary Period. The child begins to understand some of his strengths and some of his weaknesses, what he does well, and what he does not do so well. He knows that not everything that he sees and hears is accurate or true. He begins to understand that he is an individual who must think and act for himself and assume individual responsibility as rapidly as he can and as freedom is given him to do so. He understands that his actions will affect the response of others to him.

Intermediate Period. The child's knowledge and understanding of individual differences in social and emotional development involve insights about himself in relation to others, about differences between the child's and the adult's behavior, about relationships between feelings and bodily states and about the humorous side of situations. More specific items involve understanding individual relationships with others in earning money, saving money, doing an honest job, and so on.

Upper-Grade Period. The child understands that scientific progress not only adds to comforts and conveniences, to health and happiness, but also brings new dangers to individuals and to nations. He develops a clearer idea of his most acceptable self. He considers his abilities and interests in relation to an educational program or a vocational field. He looks forward to sexual maturity as an aspect of self-fulfillment, and understands the major aspects of reproduction in human beings. He understands the value of the proper use of leisure and recognizes the relationship between activity and the release of tensions.

He gains in understanding of his parents' point of view: their anxiety about his safety, their need to be important in his life,

their desire to have him realize their unfulfilled ambitions. He recognizes that his natural resistance to adult domination is part of his growing toward maturity.

B. Skill and Competence

Primary Period. The child is able to make oral announcements on his own, to give simple directions clearly, to work alone for a period of time, to work out some of his problems independently, to recognize the most obvious of jokes, and to have some capacity to be a good sport when defeated. He can carry out brief individual assignments in school without supervision.

He has enough social tolerance to be able to accept differences in manners, in speech, and in grooming. He is able to be friendly and easy with members of other ethnic and class groups. He can arrange classroom furniture for effective group work and communication. He helps to put away materials and equipment after use. He is able to travel alone on streetcars, buses, and other public conveyances for short distances.

Intermediate Period. He is able to get along with others in sports and social situations. He is able to confide his uncertainties and worries to parents, teachers, and other helpful adults. He is able to evaluate his own progress toward specific goals, to plan his own time, and to operate on a schedule.

Upper-Grade Period. He is competent in planning and carrying out social events and many other projects. He learns or develops skills useful in social situations, such as dancing, tennis, swimming. His reactions to failure are increasingly directed toward modifying his own behavior; this does *not* include moodiness or extreme feelings of guilt.

He introduces independently acquired factual material or the opinions of other people into class discussions when relevant. He is sensitive to the feelings of others. He develops skills in individual and group contacts with the opposite sex.

He helps to evaluate his own progress in terms of his aims (though he may change his aims frequently). He begins to systematize his work in order to accomplish all the things he wants

to do. He arranges work so as to complete a maximum amount of his out-of-class assignments in study hall or library periods, makes wise choices with respect to the demands of his environment. He understands the essential elements of health and safe living and practices them. He can see the point of an ordinary joke. He can travel alone in public conveyances for day-long trips.

C. Attitude and Interest

Primary Period. The child shows pride in completing his share of a class project by calling the attention of others to it, wanting to take it home, and so on. He shows pride in the growth of his skills and has a desire to be adequate in the situation at hand. He feels a sense of personal worth and esteem. He is developing the attitudes that allow him to face difficulties frankly and realistically, to deal with his feelings of anger and hostility, to want to be trusted, to want less adult supervision in his play. He shows an interest in his own physical and mental limitations and those of others, and experiences a minimum of disturbance at handicaps that cannot be corrected. He accepts his own sex and sex role. He eagerly seeks school experiences despite the necessary limitations of school routine. He has a favorable attitude toward parents, teachers, and peers—he appreciates their contributions, reacts to their disapproval with some slight signs of independence and to their approval without prolonged elation. He is openly disappointed with his failure in school work. He tends to become increasingly critical of himself and less critical of others. He has an interest in animals as pets, and an affectionate interest in babies. He identifies himself with one or more glamorous persons (for instance, Hopalong Cassidy). He has a collection hobby; he enjoys active play. He is developing the ability to accept manners, speech, grooming, and behavior that are different from his own or those of his family or neighbors. His attitudes toward his brothers and sisters are fairly free from hostility.

Intermediate Period. He shows interest and pride in his physical growth and development, health and strength, rapidly expanding abilities, social and group competences, growing sense of humor. He is interested in the point of view of other people and is respect-

ful of their opinions, but is becoming more critical of adults. He prefers to make rules and regulations for himself or in cooperation with his peer group. He tends to accept the consequences of his own acts—if the penalties are not too severe—without much display of hurt feelings, rebelliousness, or annoyance, and with frequent resolutions to do better, to work harder (and because of his immaturity, with much backsliding). He has a zest for adventure, but is alert to health and safety. He shows concern at unfinished work, satisfaction at completed work.

Upper-Grade Period. He regards his own status and his own experiences as normal. He develops ethical standards and grows personally through reading biographies, reading other appropriate literature, learning about scientific "truth," substituting realistic ideals for glamorous ideals, developing pride in producing high-quality work, substituting personal excellence for competitive winning, and developing an admiration for knowledge and understanding. He does not get satisfaction from the failures of others. He shows consideration for the opposite sex.

He shows beginning signs of seeking the good opinion of the adults about himself. His desire to be accepted as a person with semi-adult status is exemplified by efforts at adult (nonschool) conversation, seeking nonschool contacts with a favorite teacher, and initiating conversation with available young adults (relatives, garage mechanics, restaurant keepers, hairdressers, and others) about young adult matters.

He welcomes suggestions from adults, but not adult domination; he is achieving emotional independence from parents and other adults. Attitudes and skills needed in individual and group social contacts with the opposite sex are being developed. He is sensitive to the feelings of others as shown by their conversation, facial expression, and expressive movements. He tries to be independent in thought and action. He is developing wide general interests as well as specific academic and avocational interests. He shows a healthy interest in younger children.

He is beginning to define life goals realistically. He has a growing perception of the total community, and perhaps attempts to become integrated in it independently of his own family. He

shows some ability to arrive at, carry out, or defend his own point of view. He is trying out adult responsibilities. He gets satisfaction from the success of his group.

D. Action Pattern

Primary Period. The child acts within a pattern of positive self-expression and increasing individual integrity. This involves some rebelliousness and some questioning of the complete validity of statements by older children and adults. It also involves self-assertion, the making of minor choices, and the committing of some errors. He thinks more for himself, makes more of his own decisions, appraises his own performance, entertains himself when alone, goes on errands and to and from school by himself, defends himself, makes some independent choices in eating.

When interested, he will sometimes work for an hour or more at a single task. He tries to finish the work he has begun and, since he can sustain his attention for a longer period, frequently succeeds in controlling his behavior to reach certain goals or to handle increasingly difficult situations. When he has finished one piece of work, he tends to find something else worthwhile to do. He selects and takes part in various games and recreational activities suitable to his age and grade. He seeks vicarious adventure through books, radio, movies, and television. He encounters mild physical injuries or accidents to property with brief and not intense grimacing and crying. While failure at school work sometimes elicits an openly disappointed reaction, there is some indication of renewed effort toward accomplishment and of growth in ability to receive and act on criticisms without feeling hurt. Failures in social relations are met with a willingness to discuss the problem with the teacher (when she takes the initiative). There is a tendency to compete (in school work and in behavior) with others for the teacher's approval. He is able to control his behavior so as not to lose the love of persons important to him. He refrains from hasty judgments of others. He usually handles feelings of anger by channeling them into some constructive activity, rather than by hurting persons, destroying property, or bottling up his emotions.

Intermediate Period. He can spend up to an hour an evening on constructive projects without parental supervision. He has an increased attention span in reading, writing, and other activities. He practices skills over and over again to master them. He reads both fiction and nonfiction. He has acquired one or more hobbies. He volunteers to assume responsibilities and carries them out. He sets realistic standards of achievement for himself and shows initiative in achieving them. He works to overcome failures in his school work and in his social relations. He is able to work alone and plans his time to take care of work, recreation, rest, and play. He tends to develop a special enthusiasm, such as for knowledge about railroads or radio. He takes responsibility for jobs for which he is paid. He has a wide span of play activities. He can meet frustration without prolonged moodiness, depression, or bitterness. He can suffer mild physical injury without emotional upset. He can relieve personal tensions through constructive activities. He seeks adult assistance in meeting his emotional problems. He is increasingly able to wait for delayed satisfactions.

He is maturing in his social relations, achieving personal independence from parents and other adults, and is developing self-assurance, self-assertion, and self-appraisal. He is beginning to discard many childish habits. His code of behavior is predominantly that of his peer group, especially in dress, language, and etiquette. He accepts and follows the socially approved role for his sex. He is courteous in audience situations, in using the telephone. He identifies himself with some ideal person, and imitates characteristics of a favorite adult.

Upper-Grade Period. He is learning to evaluate his own aims and progress as well as those of his peer group. He is developing a tendency both to consider and to question what he hears and reads. He tends to suspend judgment and action until after a period of deliberation. He seeks to be independent and to get credit for exercising good judgment. He increasingly makes his own decisions and assumes responsibility for the use and care of his own clothing, for his own diet, for his own recreation, and for the performance of his own school work. He develops action patterns in terms of his increasing independence and accepts a mini-

mum of adult supervision. He tries to avoid causing unhappiness to his parents. When an adult's attitude or behavior toward him is unkind, he tries to adjust to it without too much emotional wear and tear. He has poise and confidence, and can meet failure or disappointment without being unduly upset. He learns to gain some control over fear-arousing situations, such as examinations or financial problems. He evaluates his own limitations and makes wise choices. He completes assignments on time without supervision. He does not use alcohol or drugs for other than their accepted purposes. He does not smoke habitually.

By the ninth grade, a child should have made considerable progress in facing a normal range of tensional problems in everyday life without temper display, without crying or other extreme overt reaction, and without persisting internal strains. (Many determining conditions affect the child's reaction here.)

Habitually acceptable behavior between the sexes indicates, at least in part, that the nature of affectional heterosexual feelings is perceived and that the individual has acquired adequate and socially acceptable ways of expressing them. Failure implies nonrecognition, grossly inappropriate ways of expressing sexual feelings, fixation of affectional feelings on members of same sex, or use of sexual relationships in a hostile or exploitative manner. The acceptable role at this age includes development of a desire to acquire an appropriate masculine or feminine occupational status. The child also begins to assess himself critically in terms of future marriage.

E. Determining Conditions

Primary Period. During these years, and to a certain extent thereafter, the child is highly dependent on adults for all sorts of decisions—where to go and when, what to wear, and so forth. He takes many of his cues from the adults around him. For example, his attitudes (mentioned above) toward failure in school will be greatly influenced by his teacher's attitude or his parents' attitude toward that failure. His sex role, whether masculine or feminine, is set for him by his culture and his social class, and is very different at age nine from that at age twelve or fifteen. It has

little relationship at this age to physical maturity, except in cases of extremely early or retarded maturation.

Intermediate Period. The degree of physical maturity is highly important at this age. It affects the child's self-assertion, boisterousness, impudence, ability to take criticism, and his sex role. Early maturation is not necessarily most desirable. A physically mature body at this age is seldom accompanied by a similar degree of mental and emotional maturity. The disparities that arise from uneven development create many difficult situations for children.

Interest patterns related to a vocation are, at the sixth-grade level, often poorly integrated, with many inconsistencies. They are likely to reflect a fortuitous association, a transient play interest, or some personality need, rather than a careful judgment about personal aptitudes and vocational possibilities. This is only slightly less true at the ninth grade. As an outcome of education in the elementary school, we should not expect the average child to reach a stable vocational orientation.

Upper-Grade Period. The schools should provide conditions under which pupils may have a variety of opportunities for social participation—in the classrooms, on the playground, and in a variety of extracurricular and social activities. Attention should be given not merely to the children whose main interests are in activities that involve other people, but also to the children who are shy or withdrawn and who are slow to learn the social techniques.

Strict school discipline may have unfortunate effects in suppressing emotional expression. Although direct, uninhibited, tempestuous, emotional expression is essentially infantile, it cannot be overcome constructively through domination by the teacher. Normally these infantile characteristics decrease not alone because of school discipline, but also because of the requirements of our culture. The decrease may also have some maturational basis in the physiological process of growing up. The schools should assist this development by providing standards and controls through the peer group. If a child misbehaves because he is disturbed at failure or at being hurt in his home or by children whom he would like to have for friends, forcing him

to behave may be more harmful than helpful—*unless* we also remove the causes for his misbehavior. It is dangerous to drive his feelings under cover. This is sometimes called the "internalization of the emotions." The schools must avoid substituting unresolved internal strains for external expressions. Internalization of emotion may or may not be a hygienic process.

The school will seek ways of dealing with bad social attitudes. Intolerance and misinterpretation, although perhaps more a matter of family and community than of inculcation by teachers, is becoming a responsibility of the schools.

3. Ethical Behavior, Standards, Values

Ethical behavior, standards, and values are related to the observance of the moral law and the civil law. This area includes the observance of much that gains its validity from the customs and mores of the culture. It involves sportsmanship, kindliness, helpfulness, and the problems involved in living in a society with other people. It is concerned with the integrity and honesty of people. This area obviously is related to and overlaps other areas, such as individual social and emotional development, and social relations.

A. Knowledge and Understanding

Primary Period. The child knows the basic rules in such concepts as the ownership of property, trespassing, theft, and the responsibility of the finder of lost articles. He recognizes the rights of weaker persons to freedom from unprovoked aggression and bullying. He begins to realize that freedoms and privileges involve responsibilities. He can distinguish his property from the property of other individuals and groups. He can differentiate between truth and falsehood on an elementary level. He is beginning to develop a sense of fair play. He is beginning to understand the purpose of the school. He differentiates between aggression that merely produces pain and aggression that produces bodily injury. He is forming religious ideas, such as an idea of God. He sees the simple morals in narratives and in such materials as the easiest of *Aesop's Fables.* He knows that people approve of efforts to make the world "better."

Intermediate Period. He begins to understand that people are not "all good" or "all bad"; that there are degrees of goodness and badness. He begins to understand the elements of character, identifying himself with and imitating heroes and heroines, real and fictional. He develops an awareness of property rights, of truth and falsehood. He understands the basic principle of giving value in return for value received.

Upper-Grade Period. He knows the laws and rules which he is expected to obey. (He has had some share in making many of them.) He is aware of his responsibility to society for conserving human and material resources. He recognizes many of the differences and similarities among racial, religious, and social groups. He knows the value of wise use of leisure time.

B. Skill and Competence

Primary Period. The child is developing skill and competence in expressing values. This is usually done in absolute terms and is generally limited to classifying as "good" or "bad," particularly when the values refer to human behavior. He has learned to handle some of his own disputes without adult assistance and to make some of his own simple rules. He knows how to take turns at games, sports, talking, and in the use of supplies and facilities.

Intermediate Period. He is able to like a person in spite of disliking his behavior in specific instances. He has strong loyalties. He can discuss abstract topics such as "what honesty means," and illustrates his views by examples. He can apply personally the principle of "giving value for value received," in situations involving credit for hard work, honest work for wages, or paying a child who helps him with a job. His conception of "property" enables him to refrain from taking what does not belong to him.

Upper-Grade Period. He is able to make ethical judgments on the basis of consequences. He can carry on an intelligent and earnest conversation about ethics, behavior, and current social experiences. He is able to clarify his own ethical standards and personal goals through reading. He regards other people as individuals, not as stereotypes,[1] and is considerate of everyone. He acts in

[1] The Scotsman depicted as a stingy person is an example of such stereotypes.

accordance with certain religious beliefs, but accepts the right of others to have a faith different from his own. He assesses ethical behavior in terms of the motivation and the capacities of the other person. He shows a concern for democratic values both in and out of school.

C. Attitude and Interest

Primary Period. The child is friendly toward other people. He reacts to his associates in accord with his assessment of their personal qualities, but without regard to their race, religion, or national origin. He is aware of the interdependence of all members of the community, is concerned with maintaining his and their health, safety, and happiness. He disapproves of stealing, and has a "hands off" attitude toward the property of others. He respects the rights and individuality of others. He is developing a sense of fair play and honesty. He has sympathy for those who are ill or in trouble.

He has a keen sense of wonder about the unseen world. His attitude toward school, teachers, aggression, and moral behavior can be moderately identified with parental values, but he cannot yet discuss these values much beyond the repeating of parental opinions.

Intermediate Period. He believes in justice and fair play, in honor and in truth, and he applies these first and best in his dealings with his peers and his cliques. He likes to settle problems in accordance with the peer code. He is interested in altruistic club activities. His loyalties to his gangs and cliques are generally deep, and he is particularly eager to abide by the decisions of such groups. He disapproves of stealing or destroying the property of others. He protects other children, particularly the "underdog" or the handicapped. He questions a few of the parental values that are in conflict with clique values. He develops a concern for behavior of people in public places. He develops an interest in religion and church membership. He is strongly influenced by a desire to do things well. He sets a good example for other members of his group.

Upper-Grade Period. He is critically interested in established ethical and moral standards, yet he is willing to accept much more of the "ethical" than is sometimes realized. (Parents and teachers tend to exaggerate his rebelliousness and overlook his conformity.)

D. Action Pattern

Primary Period. The child is acquiring a set of values and an ethical system as a guide for his behavior. At this stage he can help to make rules of behavior for his group involving the rights, the property, and the personalities of his peers, or the use of school equipment and materials for the playing of games. He tends to obey school rules that he has participated in discussing or establishing, or that he has accepted. He has a keen sense of fairness in applying group standards to his peers, and adult standards to adults, but is not acute in applying these standards to himself. However, he abides by them most of the time.

Intermediate Period. He habitually acts in accord with a system of ethical values, although these are not always the same as adult values. He develops ethical and spiritual values through acts of cooperation, sharing responsibility, playing fair, volunteering to help, helping to set group standards of behavior, subordinating self-interest in working with others, developing active concern for children in other parts of the world, participating in student self-government, handling normal boy-girl antagonisms without hurting others, and judging the behavior of himself and others without attaching blame or dislike to them. He tends to be analytical in evaluating behavior. He begins to develop ethical standards in relation to comic books, radio and television programs, jokes.

Upper-Grade Period. His action pattern is guided by his set of values. He understands and acts in accordance with the laws and practices governing lost and found property. He is considerate of other persons. He recognizes many evil and destructive forces, and resists and combats them. He maintains sound standards and values under difficult conditions. He does not do what he believes to be wrong just because others do it. He has learned to behave

acceptably with members of the opposite sex. He has learned some facts about delinquency and has some ideas as to how to prevent it. He avoids many of the anxieties of growing up by observing ethical values as a guide to behavior.

E. Determining Conditions

Primary Period. At this stage the standards of politeness, of honesty, of correct or moral behavior that are shown by children, especially in any situation that is encountered for the first time in school, are largely the result of family and home environment. The child's beliefs about good and bad, right and wrong are laid down in his early years in the context of his family. These early formulations, carried into the wider interaction of the school, enable him to act more and more consistently as an honest, responsible, and loyal person in a variety of situations if his home background has been good. If not, the school is faced with increased responsibilities. His ethical code also develops in the give-and-take of games and other activities with his peer group. This new code is more flexible and modifiable than the code taken uncritically from the parents. These ethical ideas are in a gradual state of development. As the child approaches adolescence, his code of personal behavior enables him to make increasingly specific and valid personal judgments on questions of honesty, loyalty, responsibility, consideration for others.

Intermediate Period. In dealing with teachers, parents, and other adults, he may go through a period when he views them (and their beliefs) as an outsider rather than as a participant. His sense of values, of right and wrong, is developed first of all by his childhood training in the family, and then modified by his peer group.

Upper-Grade Period. At this age and stage his values are affected not only by their earlier family basis and the currently strong peer culture, but also by the physical and emotional changes that are a part of his maturation. The growing spirituality, emotionality, and sensitivities of adolescence must be understood if the child's school experiences are to be guided properly. The impact on the child of things beyond his control must always be taken

into account, to the extent that it is possible to do so. He should be helped to adjust to life about him in ways that are socially and morally acceptable.

4. Social Relations

This section grows out of the two categories just outlined: individual social and emotional development, and ethical behavior, standards, values. It is devoted to the individual as a person in his personal-social relations with others, when he has to consider the needs, interests, motives, convictions, and ideals of others with whom he associates in home, community, and place of work.

A. Knowledge and Understanding

Primary Period. The child begins to realize that freedoms and privileges involve responsibility. He shows growing understanding of why other children and adults behave as they do. He knows about the more familiar occupations of various persons in his community. He understands generally the process of electing officers of his group. He knows the rules of the team games he plays. He understands that there are harmonious ways to get along with many different kinds of people, including "difficult" people.

Intermediate Period. He understands the need of taking into account the motives and viewpoints of other members of his family. He understands and accepts his membership role in the organized and unorganized groups of which he is a part, such as face-to-face relationships in play and work, team assignments in games, "leader and follower" relationships in *structured* and *unstructured* situations. He understands that there are individual differences in the abilities and interests of people around him. He knows his duties as a member of a family.

Upper-Grade Period. He is becoming more aware of himself as a member of his family—of his individual role in the family life, of his family responsibilities. He knows the value of the healthy use of leisure. He understands that the manners, speech, and grooming of other persons are not an accurate or reliable indication of their fundamental character. He understands the diversity of

acceptable social behavior in various groups. He learns that many people tend to fear being different from others in dress, behavior, physique, appearance, talents. He understands and carries out his responsibility as a member of a democratic group. He understands many social pressures and how to handle them.

B. Skill and Competence

Primary Period. The child is able to participate in group discussions of plans for future group action, a play, a trip to a factory or a picnic, and decisions governing the group's behavior in very simple matters, such as whether the class should have an outdoor picnic or an indoor party. In participation of this type, he knows how to listen to what others say, take his turn in suggesting activities or in giving directions to others, carry on a friendly conversation, assume group leadership on occasions, participate with others in group meetings, work on a cooperative project, share information with others, recognize and introduce visitors hospitably, and behave appropriately when differences of opinion occur.

In strictly peer relationships, he is able to enter into play situations with others, follow the rules of the game, introduce and lead, or accept and follow in new games and dances.

He is able to find his way around his neighborhood.

Intermediate Period. Increasingly, he can assume leadership when his peer group wishes him to, and can also be a cooperative member when another is leading. He is able to work with his group. He knows how to conduct a class election. As a representative, he can report actions to his group. He knows how to elect representatives to a governing body. He is able to accept group decisions. He knows how to preside as president or chairman of a group. He is a courteous speaker or listener. He knows how to play games harmoniously and skillfully. He is able to accept intellectual, physical, and racial differences among his classmates.

Upper-Grade Period. He can contribute to group discussions; he can ask thoughtful questions; he can supply ideas. He can introduce himself and others naturally and courteously; he can make strangers feel at ease. He makes suggestions to bring about harmony and compromise. He uses the necessary social skills in

games and at parties. He can carry out his responsibilities in a democratic group. He can help plan social events. He differentiates between persons and their behavior, accepting a diversity of behavior. He is able to enjoy a party at which both sexes are present. He is somewhat able to encounter and cope with ridicule, to discuss human behavior objectively and impersonally, and to discuss ethics and current events intelligently.

C. Attitude and Interest

Primary Period. The child is willing to be of service to the group of which he is a member. He enjoys team games and group games and is beginning to be interested in organized games; plays regularly and eagerly, though often separately, with from one to three children of the same sex. He is irritated when deprived of opportunity to play with his peers. While he chooses the same sex for ordinary play, he shows no resentment when working with the opposite sex in semi-formal situations, as in a class project.

He begins to show interest in joining others in clubs, tree houses, and other groups in and out of school. He shows a developing "we" feeling in eagerly seeking social experiences and in recognizing and respecting the rights of others. He feels himself a part of such large school concerns as safety at crossings, clean playgrounds, and orderly halls. He is pleased when visitors come. He begins to develop "pals"—"bosom friends." He shows interest in stories about other children, their adventures and their pets. In an interview, his responses show a generally favorable attitude toward parents, teachers, and peers; he has relatively few complaints about them. He competes with his classmates for the teacher's approval of the quality of his work. He appreciates his parents and does not wish to hurt them. He is becoming more critical of himself and less critical of others.

Intermediate Period. He is developing an interest and concern about the sensibilities of others in a conversation or other social situation. He is concerned about the safety of others. He wants to build friendships with others. He is beginning to show an interest in social relationships, such as sharing confidences with others of the same sex, developing loyalties within groups, enjoying team

play, settling disputes and arguments in organized meetings, developing a spirit of clean play and class spirit. He is learning to accept personal responsibility when at fault in group activity.

Upper-Grade Period. He places a high value on acceptance by his peers, likes to "feel with" others, see things from their point of view. He gets personal satisfaction from the success of his group and makes friends on the basis of a sound evaluation of other people. He feels warmly toward others, avoids regarding persons as stereotypes, is happy when others are successful, has a humanitarian feeling, has a concern for the safety of others. He accepts the fact that there are religious faiths other than his own. He enjoys social affairs on an increasingly adult level. On occasion, he is able to differ in opinion from his fellows and to accept such behavior in others. He likes to feel on his own in many situations, but is able to return to home base without a feeling of failure or shame.

He begins to have an interest in reading love stories (girls develop this interest much earlier than boys) and gradually becomes interested in preparing for marriage and family life.

D. Action Pattern

Primary Period. The child shows acceptance of the roles played by different people in his group, and shows ability to shift his own role, for example, from chairman to simple member. He is able to accept group decisions that he has opposed, without prolonged argument or refusal to conform. In games or play sessions, he follows pupil leadership, abides by rules, rarely fights, defends himself when necessary, shows increased sympathy and understanding of why others behave as they do, and begins to appreciate the abilities of other children. He treats handicapped children constructively.[1] In the classroom he helps with planning under the guidance of the teacher, reacts thoughtfully to discussions, and abides by decisions. He helps put away supplies, to care for equipment, and so on. In small groups he shares toys, tools, and materials with others. He waits his turn in using equipment,

[1] He encourages them to be self-reliant, but assists them to the extent that they can participate in school activities.

being leader, and so on. He helps others and assumes increasing social responsibility. He generally has several friends, with whom he works and plays. He may belong to a club—formal or informal. He extends common courtesies to visitors or guests. He performs his proper duties and chores, and shares in the responsibilities of the family.

In his group he really discovers and learns his social personality —his social stimulus—value to others and theirs to him. He begins to develop abilities and attitudes to use in approaching people, in avoiding them, in conversing with them, and in being in sympathy with them. He develops constructive relationships with those about him. To some degree he accepts and makes use of the intellectual, physical, and racial differences found among his classmates.

Intermediate Period. He habitually assumes responsibility for the safety of others, group cooperation, audience courtesy, sportsmanship in games, and courtesy in the use of language. He cooperates in projects with as many as five other children—projects that may last several weeks. He begins to accept the conventional etiquette of eating, of boy-girl relationships, of arguments and quarrels.

Upper-Grade Period. He accords to others the right to differ in opinions in social, political, economic, and other areas. He understands that a point of view or social behavior different from his own can be acceptable. He tries to withhold strong or flat assertions of his own point of view until he understands that of another and makes some evaluation of it. In committee work he listens as well as talks. He develops a willingness to change his opinion in the light of new evidence or insight and tries to reach the best solution to problems. He takes responsibility as a group officer, chooses group leaders on the basis of merit. He is tolerant of the mistakes of others, offers assistance generously, inquires about the work, health, and activities of his associates. He practices being friendly, applauds the efforts of others—even opponents in games. He begins to realize that some types of tattling—such as reporting anyone who tries to persuade him to try a habit-forming drug—are socially good. He resists conformity to undesirable group standards, acts so that he can live at peace with himself as well as

with his group. He conforms to group standards (in dress, manner, and so on) only when they are worthy, or at least harmless. He tries to carry his own share in doing things for friends and family. He recognizes the rightful sphere of his family's interest in his education, vocation, social life, recreation, religion. He regards family responsibilities as having high priority. He shows concern for the safety and welfare of others (as when driving a car). He behaves acceptably in mixed groups, makes active efforts to enjoy appropriate social activities with the opposite sex. He studies human behavior.

E. Determining Conditions

Primary Period. In getting along with age-mates in a constructive pattern of social interaction, the peer group provides an important milieu for personal and social development. It seems to fulfill some needs and perform some functions which no other setting provides. In the peer group a child can work out a conception of himself and arrive at some estimation of how his contemporaries regard him. In such a setting it is possible to develop the idea of having co-equals to an extent that is seldom achieved when children are trying to relate to the always more powerful and wiser adults. A sense of personal worth is partly developed through being able to make realistic comparisons of one's own abilities, talents, and accomplishments with those of persons at the same point of development. That is to say, the child must "try his muscles" (physically, emotionally, intellectually) against those of peers—not evaluate himself against those much further advanced or retarded. It seems that few children develop into happy, successful, well-adjusted people in later life unless they have been able to engage in continuing, positive, well-knit interaction with a peer group during these years of growth.

Intermediate Period. At this stage boys tend to choose companions of their own sex for all activities, but accept adult standards of politeness toward girls. Boys express hostilities by vigorous arguments, occasional fights, but not tattling. Girls choose companions of their own sex for all school activities, but take initiative in obtaining boys' cooperation for parties, outings, and so on.

Girls tend to show some understanding of their own greater social maturity by avoiding situations that are embarrassing to boys, such as asking girls to dances, escorting girls, and so on. Girls show hostility mainly through verbal aggressions. Both boys and girls at this age gain security in feeling that they belong to a group.

Upper-Grade Period. The school should provide conditions that make it difficult for friendship groups to develop into exclusive social cliques. One of the functions of the public school is to provide opportunities for mixed-sex activities. In the past these have been limited rather largely to the classroom and to more or less formal extracurricular activities, such as school parties and school clubs. The problems of the shy and unattractive youngster, the early-maturing girl, and the late-maturing boy are not adequately met by these provisions. Other opportunities, such as informal mixed-sex activities and individual counseling, should be utilized for their development.

Throughout this whole section on social relations it is clear that physical growth and development is an important determining condition, though it is treated in another section by itself. In fact, there is broad interrelatedness between many sections of the goals. Many personal factors, unrelated to the school, may be involved in producing in some children a trend toward a sugar-coated, unrealistic, or ignorant optimism; and in others, an attitude of hopelessness or gloomy cynicism. These factors may be of such overwhelming potency that teachers can do little about them. However, it is clear that education needs to be concerned not merely with skill and knowledge, but also with the social attitudes with which these are pursued and utilized. There are many agencies outside the schools that serve constructively in helping to achieve such goals.

5. The Social World

This section on the social world considers the child in a somewhat broader social setting than does the preceding section on social relations. Here we set goals for the child in terms of the structure and the institutions of our culture. The behavior of the child is considered in relation to community, state, and nation. Geography in its relation to man is in

this background. Civics, elementary economics, government, and the traditional American way of life come in this area.

A. Knowlege and Understanding

Primary Period. The child should understand the roles of teachers, principal, other school adults, members of the family, and public servants in the community—policeman, fireman, postman, garbage collector, and others—as they affect his life and the lives of others.[1]

The child should know and understand many facts about his neighborhood and city, particularly those that bear upon the lives of children. He should know something about important men and events in his community, in his country, and in other countries. He should know something of the way of living in early days in his community, in his country, and in other lands. He should begin to understand how man has adapted himself to his environment by contrasting the ways of living of various primitive people, of early shepherds and farmers, of colonizers and pioneers, with present modes of living. He should know something about the life and culture of the American Indian, the Eskimo. He should understand the relationship between seasonal changes and the way people live and dress.

In this area he should have a growing geographical vocabulary and a reading recognition of simple, basic words, such as country, state, president, court, Indian.

Intermediate Period. On an elementary level, he understands the social and economic significance of money. He understands that man's way of life is influenced by his cultural heritage and by his physical world. He understands that changes in transportation and communication affect local, national, and world affairs. He understands that people differ throughout the world, that communities differ, but that all people throughout the world are becoming increasingly interdependent.

[1] The social life of children from one to eight is the subject of *Your Child and Other People* by Rhoda W. Bacmeister, Little, Brown and Co., Boston, 1950. It contains an excellent list of toys for youngsters. It discusses first friends, cooperation, the funnies, television, and makes some interesting comments on how to cope with arithmetic. The final chapter on character formation shows what is meant by saying that "Living makes character."

He understands why air travel has made new types of maps necessary. He knows many things about local and state government through reading, direct observation, and experiences with self-government in school. He knows many stories and historical incidents from studying geography, history, and local affairs. He knows many facts about people who live in other parts of the world, or who lived in other times, and is able to contrast their different ways of living. He knows how biography, autobiography, and historical fiction differ. He is able to recognize and reject stereotypes of people.

Upper-Grade Period. He understands some of the changes that scientific discoveries and new inventions have brought about in the home, in the community, in the nation, and in the world. He knows how the United States began, the sources of its authority and strength, the forces that guide and weaken it. He understands the *democratic* traditions and objectives in American life and the personal obligation of citizens to state and nation. He knows about recent changes in travel, communication, production and consumption of goods, conservation, education, human rights, and entertainment. He recognizes the fact that he lives in a divided world. He is aware of some of the significant current issues in international, political, social, and economic matters. He understands the necessity for a variety of viewpoints on controversial issues. He understands something of the practical politics of the American election machinery. He judges political practices on the basis of democratic theory. He understands the effect of geography on world affairs—natural resources, conservation, population pressures, and so on. He understands that America is made up of various culture groups. He is familiar with community conditions concerning housing, recreation, law enforcement, racial differences, labor-management problems, class structure, and the like. He understands something of community living in other parts of the world.

He knows the laws he is expected to obey. He understands many of the rules of the road. He knows some reasons for having laws, and institutions such as schools, libraries, courts, health departments. He can find points of current interest on the map. He

begins to understand the responsibility of government for conservation. He understands the possibility of creating security and abundance for all human beings by the intelligent application of scientific knowledge. He begins to have some systematic knowledge of American history, the federal government, and the Constitution. He understands the role of government, law, and police power in social living. He realizes that democracy is a growing and changing process. He knows that our government is a republic and is learning what that means.

He has a growing fund of information about personal problems, interpersonal problems, racial, religious, and social differences, and vocational fields from reading biography, fiction, reference books, pamphlets, and newspapers, and from school experience. He knows that further knowledge often clears up controversies.

He sees his abilities and interests in relation to an educational program, a vocational field, avocations, recreation.

He can interpret graphs, maps, charts, and other social studies symbols that appear in his reading. He has a growing social studies vocabulary (perhaps as many as 350 special terms). He is beginning to understand something of the causes and effects of war.

B. Skill and Competence

Primary Period. The child should be able to read a map of his city or town and to find his own home, school, and church on it. On larger maps he should be able to indicate some points of interest and to chart some imaginary travels. He should be able to contrast the ways of doing work with tools and with machines. He should be able to classify the vocational activities of various people under such major headings as building homes, getting food, making clothes, trading. He sees that people in one vocation or occupation are dependent on many others in other occupations. He should be able to take part in dramatizing short scenes and historical occurrences and in reading stories about child-life among other people.

He is moving away from a pattern in which nearly all rules of behavior come from stronger persons, and tends to conform not because he is restrained but because he consents.

He develops an appropriate sex role (this may vary from one social class to another) and adopts the social conventions of sex modesty.

Intermediate Period. He can read political maps, physiographical maps, and distribution maps. He is able to dramatize scenes and incidents from history. He is able to analyze school procedures in terms of democratic principles and to compare them with local, state, and national government.

Upper-Grade Period. He is able to participate in dramatizations of historical and current events, or dramatic plays. He knows how to preside over a meeting with skill and can perform other official group duties. He seeks wide participation from the membership of his groups. He knows many of the formal "rules of order." He behaves democratically in student government and in social situations. He can discuss ethics, behavior, and current affairs intelligently and seriously.

C. Attitude and Interest

Primary Period. The child is learning an appropriate set of social attitudes toward institutions and social groups and toward members of other racial, religious, or socioeconomic groups. He shows an interest in needy children in other parts of the country and the world. He should be interested in "once upon a time" stories about important persons in the past, some of which will be related to the observance of holidays and special days. He is interested in primitive peoples and prehistoric times. He has a friendly attitude toward the various people in his community who serve him—policeman, fireman, mailman, and others.

Intermediate Period. He is interested in stories of adventure and in the great historical personages. He is interested in stories of man's activities in modifying and adjusting to his environment. He is interested in current events and in relating them to the history and geography of their regions. He has a sense of kinship for human beings everywhere. He appreciates different races and

cultures. He likes to work in groups. He is becoming interested in social problems broader than those of his local community. He respects the rights of others, including minority groups. He has an appreciation for the dignity of all kinds of useful labor. He appreciates the fact that all people should have the advantages of education.

Upper-Grade Period. He shows concern for democracy and its values (many of these values are expressed in rules and laws and in the Bill of Rights in our Constitution), and is sensitive to human needs. He respects honest differences of opinion and weighs them carefully, and is open-minded in the face of new facts and insights. He desires to be useful and pleasant. He faces his own difficulties and seeks to deal with them realistically. He feels secure in finding new ways of doing things. He expands his interests and enthusiasms to include the less personal aspects of social studies—economics, colonization, and so on—and is aware of the problems in the region, nation, world. Activities such as "scouting" give children an added opportunity to develop hobby and vocational interests.

D. Action Pattern

Primary Period. The child's patterns of action in his social world are determined by a well-developed curiosity about various facets of life. He possesses a sense of humor that enables him to take a joke or two on himself. He shows a tendency to defend others who are wronged or injured.

He increasingly tends to be able to use the printed word for obtaining information about the social studies.

While becoming a bit less dependent on adults, he still needs and seeks their suggestions and approval. He may develop an affectionate, constructive relationship with at least one adult outside his family group. He cooperates in a friendly manner with public servants—policemen, postmen, teachers, garbage collectors, and others, with whom he comes in contact, accepting them as agents of the community.

Intermediate Period. He habitually tries to look at problems from all sides, to recognize superstitions and other unfounded beliefs,

to approach problems with a scientific attitude, to use reference books to gain information, to use textbooks to organize information, to connect what happens in the lives of persons with their previous experiences and their environment, to postpone decisions until as much information as possible is at hand. He tends to analyze outcomes partly in terms of the methods used to obtain those outcomes. He reads newspapers and current events magazines occasionally and is beginning to relate items of local history to state and national history.

Upper-Grade Period. He gets some experience in working for pay during the summer or part-time. He relies increasingly on the methods of science in dealing with both the physical and the social world. He works out agreements from divergent opinions, is not "stubborn" in holding to an opinion, habitually seeks to see an opinion or problem from all sides—to search and to weigh. One of his standards is that of human welfare; others are those of the American tradition of freedom, the dignity of the individual, and the rights of all men.

He begins to take part in the larger affairs of his community and society—letters to editors, service on panels, planning with adults. He reads about current affairs regularly.

E. Determining Conditions

Primary Period. In his early years the child learns an appropriate set of social attitudes within the structure of his social groups. He learns these attitudes largely as they originate in the family, but the influence of his peer group may change their direction, tone, and intensity to a moderate degree. He is influenced greatly during the early school years by his experience with public servants of all kinds—teacher, policeman, mailman, playground director, fireman. He is greatly influenced by people in his religious world, by people he meets who have other racial or cultural backgrounds, and by businessmen. The school should provide a setting in which all these experiences may contribute to the central ideas of democracy.

Intermediate Period. At this age social attitudes tend to be in a state of developmental change. The acceptance of social institu-

tions is less certain than for age nine because of the beginnings of an "adolescent culture," which is often a time for youth to try its muscles in opposition to adult authority.

Upper-Grade Period. Consideration must be given at this age to the impact of various societal factors on the child. Among these are the rapid changes in the home and the community that have resulted from the great technological advances of the past thirty years, the spirit of unrest and insecurity in many homes as a result of the world situation, business worries, military service by one of the parents, the speed at which we live, and the impact of movies, television, and radio. Many of the services rendered to children have been transferred from the family and the neighborhood to larger institutions farther away from the child. At age fifteen children begin to show the effects of such factors in a vast variety of behavior patterns. There are many constructive forces that have a good influence; for instance, those that result from the work of community councils, youth councils, recreation centers, and counseling services.

Children begin to detect inconsistencies between what adults "say" and what they "do."

6. The Physical World (The Natural Environment)

In this section attention is centered on an enlarged concept of science, and reference is made to many aspects of the child's environment. Physical science problems, as well as the science that deals with plants and animals, are emphasized. Also stressed are learning to think scientifically and the use of methods of science in solving problems in science and problems in everyday living. Emphasis is on thinking that associates facts and relates them in various ways to form generalizations. In the atomic age that we are entering, the substance of this section assumes increased significance.

A. Knowledge and Understanding

Primary Period. The child knows the names of the common pets and farm animals. He knows the names of many of the common local plants: garden plants, flowers, and crops. He knows about the foods of different animals and the products that animals pro-

vide to man in the way of food, clothing, and shelter. He is familiar with some of the animal and insect pests. He knows of the use of trees for providing fruit, shade, and lumber and for beauty.

He is able to read and understand simple maps of his neighborhood, his city, and his expanding community of interest. He is aware of the world as a globe, has some preliminary understanding of its main divisions and regions, and its relationship in space to the sun, the moon, and the stars. He begins to be acquainted with simple natural features, such as mountains, lakes, islands, oceans, rivers, and streams—particularly if these are found in his immediate environment. He begins to learn about simple machines, the elemental scientific background to transportation and communication.

He is able to generalize in simple terms about seasonal changes; their effect upon the way people live, dress, and eat; and their effect upon plant and animal life. He has some elementary knowledge of the fundamental processes of nature, their influence on man's way of living and his adaptation to them. He knows little stories about a few of the great men of science and something about some of the new developments in science. The child should be able to answer questions such as: What happens to water when it freezes? What makes the rain fall? Why do we have dew in the morning? He acquires a vocabulary to match his knowledge in all these areas. His knowledge is reflected in his art work, his writing, and other areas. He finds understandable answers to his questions about sex and human reproduction.

Intermediate Period. He is developing a growing scientific vocabulary; is learning to read maps in terms of air travel and air distances; is gaining information about growth and the physiological processes; is familiar with the names and characteristics of animals, birds, trees, and flowers. He is becoming acquainted with man's practical problems in relation to agriculture, erosion, conservation, fire protection, wild life. He is learning the story of the earth as it is gained from existing evidence. He has knowledge of electrical phenomena and understands the use of common electrical appliances. He knows how to handle slide projectors, movie projectors, electrical connections, radios, with skill and

safety, and understands that they are basic to modern communication. He is beginning to understand how physical features and resources affect population, conservation, recreation, industry, prosperity, aggression. He is able to contrast recent and ancient ways of living. He knows that man derives wealth from animals and from the earth. He knows the functions of the weather bureau, biological survey, geographical society. He understands that scientific progress is generally a cooperative enterprise. He knows the relative locations of the major regions of the world and is able to interpret many of the common natural phenomena. He is beginning to develop a store of knowledge about agriculture, mining, dairying, and manufacturing. He knows about and uses safe behavior with firearms, explosives, poisons, noxious weeds, poisonous plants, and such "unknowns" as dynamite caps, radium pellets. He should have a reading vocabulary of 300 history and geography words, and a recognition vocabulary of an additional 300.

He knows some ways of verifying data to distinguish between fact and opinion. He is beginning to search for "how" and "why" generalizations in what he observes in the natural world about him.

He is beginning to understand the ways in which man has gained control over his environment and has made adaptations to it, and relates this control to the development of science and civilization as we know them.

Upper-Grade Period. Children of this level should understand that scientific knowledge is the result of the work of many persons in many parts of the world. They have some comprehension of time relationships in geologic ages, and space relationships of the earth to the universe. They will learn a few basic facts about the stars and planets. Some will understand the universality of change and some of its causes. All will observe how scientific discoveries begin with questions and end with tested answers. All are aware of some examples of how scientists have "organized" information.

A child should have some knowledge of the "accepted" explanations of observed phenomena. He should observe the changes science has brought about in the home and the community in

health, welfare, industry, trade, communication, and in personal comfort. He knows that scientific developments have brought security and abundance to many, but have also brought dangers that must be taken into account. He knows and exercises safe behavior with automobiles, fire, and the like. He is able to handle the simple tools and utensils of his household. He understands many of the scientific principles that underlie everyday living. He is beginning to learn about sources of energy, about the principles underlying new mechanical and electronic communication media—telephone, phonograph, telegraph, radio and television, cinema.

He knows the chief activities and products of his own region in relation to its resources and physical features, and understands the interdependence of different regions. He is aware that natural conditions affect the lives of people. He knows the importance of soil, water, minerals, plants, and animals to man.

He uses objective sources of information in the wise choice of consumer goods and in studying about conservation, transportation, business, and so on. He has a good geographical vocabulary. He has some knowledge of vocations and rejects earlier vocational choices based on childish fantasies. (This could be assisted by information and interest tests aimed at the ninth-grade level.)

B. Skill and Competence

Primary Period. The child has a beginning skill in using maps, locating places, and routing actual or imaginary trips. He uses many of our simple tools correctly. He is able to measure accurately with rulers and perhaps some other simple measuring instruments available in the school, to use patterns, and make minor repairs and adjustments on such objects as wagons, bicycles, and flashlights. He has skill with such things as Tinker Toys, and Lincoln Logs. In terms of his community and socioeconomic status, he should be able to operate a radio and television set, ride a bicycle, row a boat, and swim. He should be careful in crossing streets, should play safely, and know how to deal with fire. He should have skill in reporting his own observations of animals, plants, and physical science phenomena.

Intermediate Period. He is able to observe accurately and describe carefully the results of individual investigations. He is able to measure and read accurately and to use simple scientific apparatus. He is able to operate household appliances and to make some of the minor repairs and adjustments about the home. He can operate a slide projector. He can use quantitative terms to summarize data. He shows skill in interpreting maps, graphs, charts, tables, diagrams. He can conduct simple scientific experiments and knows that variables must be controlled. He knows how to practice the rules of health, safety, and conservation. He knows how to do simple housekeeping chores. He knows how to care for young children.

Upper-Grade Period. He is able to read large city, regional, and world maps accurately, and is able to make a simple map. He knows how to repair a variety of appliances and simple machines, drive a car under conditions permitted by law, care for a garden, and operate recreational equipment common in his camp or family life (boats, bicycles, fishing rods). He is able to plan and prepare simple family meals or refreshments for young people's parties. He is able to help his mother or teacher serve. He can operate tape machines, projectors, and the like. He is able to build or repair simple furniture, such as bookcases and stools. He is able to see cause and effect relationships in everyday affairs and to explain them.

C. Attitude and Interest

Primary Period. The child shows a desire for information about such matters as transportation, construction, techniques of warfare, astronomy, industrial processes. His interest and curiosity begin to develop in the form of a somewhat generalized inquisitiveness about the weather, the sky, the earth, living things, machines, transportation and communication, and the natural world about him. He shows interest in science stories, pictures of animals and plants from various regions, conservation, protecting birds and birds' nests, and making science collections. He begins to develop pride in good workmanship, in planning work, and in

finishing things well; thus, he becomes critical of his own work and makes greater effort to improve.

Intermediate Period. Children become interested in and curious about the homes, customs, occupations, and products of the different regions of the world. They like to read accounts of man's activities in modifying his environment, in adjusting to it, in inventing ways to use and improve it, and in studying and experimenting to explain it. Children are interested in new discoveries and inventions. They are interested in learning the simple scientific principles of sound, light, heat, electricity, and magnetism. They exploit these interests outside school as well as in school. They derive satisfaction from the use of science books. They like to read about various forms of plant and animal life. They like to draw pictures of plants and animals; they develop science hobbies. They begin to develop a respect for good evidence and the nature of proof.

Upper-Grade Period. Children enjoy reading about science and scientists. They develop preferences among the sciences. They appreciate the scientific attitude of questioning, of suspended judgment, and are interested in scientific instruments. They recognize the need for concern for human welfare and for conservation.

They appreciate the beauty of the orderly, complex, and vast scientific world with its moral and intellectual challenge, and are eager for further knowledge of science.

D. Action Pattern

Primary Period. The child actively seeks information to satisfy his curiosity. He brings science materials to school to share with others. He helps to plan and set up procedures for the cooperative solution of simple problems, and also tries to solve problems individually. He has an appreciation of his surroundings and uses his senses to learn about his environment and to report on simple observations. He habitually asks sensible questions to satisfy his curiosity about scientific matters. He tends to differentiate between fact and fancy, and to make the best hypotheses within the limits of his ability. He employs experimental procedures in solv-

ing practical problems, such as the best way of raising plants, caring for animals, making an aquarium or terrarium, finding out what makes a cool jar "sweat" or the temperature of boiling water. He assumes responsibility for the care of plants, animals, and science materials in the schoolroom and for the care of pets, shrubs, gardens, and lawns at home and in the community.

He practices rules of conservation in regard to the natural world about him, and in saving essential materials in the school and in the home. He frequently develops skill in constructive science hobbies.

Intermediate Period. He seeks answers to questions about physical health and growth, reproduction, physical and natural phenomena, and new developments in science.

He keeps an open mind, suspends judgment, and is willing to change opinions in the face of compelling evidence. His interests extend beyond the immediate environment. He goes to reliable sources of information and collects data, examines all sides of questions prior to arriving at conclusions, interviews people who may know the answers, reads, and regards the environment as one of the best sources of information. He looks for causes, employs experimental procedures, evaluates superstitions and unfounded beliefs. He continually tests opinions in the light of new evidence, and questions the accuracy of explanations. He pursues scientific interests and hobbies. He applies simple scientific generalizations such as: "Living things reproduce their kind." "Energy can be changed from one form to another." "Changes in seasons and differences in climate are produced by changes and differences in relations of earth and sun."

He practices the rules of health, safety, and conservation. He helps to keep home and school premises clean, sanitary, and orderly. He helps to prepare meals, mend clothes, repair appliances.

Upper-Grade Period. He uses scientific information in a broad range of activities about the home relating to diet, appliances, equipment, gardens, automobile, furnace, ventilation, lighting, insects and pests, pets, winter and summer chores, faucets, and conservation.

He habitually associates facts and seeks to formulate generalizations in the social and the physical environment. He is careful to try to ascertain the difference between real facts and the conclusions they seem to suggest (in geography, for instance). He uses scientific method in seeking conclusions and finding answers. He distinguishes scientific method from superstition, magic, astrology, legend. He performs simple experiments in school and at home to satisfy curiosity about scientific questions. He seeks information as to safe rules for performing experiments.

Through reading, experimentation, and discussion, he examines the meaning and implications of new developments in such fields as electronics, plastics, jet propulsion, aircraft, and atomic energy.

E. Determining Conditions

Primary Period.[1] Many of the specific outcomes mentioned under the child's physical world are highly dependent on socioeconomic status and geographic locale. Conditions in the home and in the community are very important in this respect. Such factors must be taken into account by teachers because no child will do all these things. For example, a child in the slums of some cities (or in rural sections of Nevada or Texas) would have little interest in knowing how to row a boat, nor would he need such knowledge. Again, some children have erector sets, electric and steam trains, and similar toys in great profusion from infancy, while others never see them except in store windows. Traffic safety is very different in Lame Deer, Montana, from that on Clark Street in Chicago.

A child's background of folklore or superstition in some cases affects his scientific attitudes, particularly in the lower grades. A child's early experiences in obtaining answers to his "why" questions may be an important factor in his early school learning about the physical world. His opportunities to explore, be they such things as the countryside while at camp, or the continent of Asia through movies and books, are very important.

[1] The materials here do not lend themselves at all well to treatment under three levels. Actually, many of the items on each level are equally applicable to all other levels.

Intermediate Period. Increasing urbanization and the dominance of urban culture in determining educational programs have led to a comparative neglect of teaching on matters related to the physical environment. The farm child's direct contact with weather, soil, plant growth, and animal husbandry has been largely lost. Early attempts to replace this with "nature study" proved short-sighted and unsatisfactory, and worked to the detriment of the interests and values associated with science education. Attention needs to be given to the sources of the current illiteracy about science, to deficiencies in this connection in teacher education and teacher selection, and to the development of new ways of bringing children closer to science in terms of facts and principles. The chief burden of this program must fall in the elementary school, probably reaching a peak in the fifth or sixth grade. In the grades immediately following the sixth grade (and as early as the sixth grade for girls) emerging social interests necessarily become important. For example, how shall the school give vitality and "staying power" to the science interests, abilities, and activities of children, so that interest survives through adolescence to provide for more differentiated scientific interests later? Despite these difficulties, the schools are providing a science background. They must increasingly provide an enlarged conception of science as including all phases of the child's environment, physical and natural.

Upper-Grade Period. One of the tasks of education is to maintain and develop curiosity. Textbook-centered education tends to thwart curiosity by giving all the answers and inhibiting the free play of alert, inquiring, and critical minds. Textbooks help to get the answers, but they must not be depended upon to select the problems. The trend in schools today toward programs emphasizing social relationships is desirable, but must not concentrate on persons without emphasizing the interrelatedness of man and his environment. Man's society, his customs, his eating habits, his art—in one way or another, all things in his social life—are influenced by his physical environment.

Throughout his elementary school experience, the child should be encouraged to approach problems in an inquiring, open-

minded manner, and to reach conclusions on the basis of the best information obtainable.

The changes that have taken place in our everyday living as a result of our use of science in broad areas such as communication and transportation, and in more specific items such as our use of gadgets and devices, make it necessary that the schools adjust to a constantly changing science "content" in the schools. This is illustrated by the fact that the stratification of society into white collar and manual workers is no longer effective in distinguishing between persons who need and who do not need mechanical experience and skills. For example, in a modern technology some understanding of mechanical and electrical devices is necessary on the part of everyone. Moreover, manual arts of various kinds are of increasing recreational as well as practical importance at most social levels.

7. Esthetic Development

In this section emphasis is placed on esthetic appreciation and expression. Though the primary emphasis here is on art, music, and the crafts (literature is more fully treated in the next section), many types of artistic and creative endeavor are mentioned. The moral, the intellectual, and the emotional aspects of esthetic development are all included.

A. Knowledge and Understanding

Primary Period. The child becomes conscious of color, form, arrangement, and design in the objects and structures about him, and of descriptive or symbolic representations of people, things, and situations. He recognizes some of the primary and secondary colors, bright and dull colors, gay and drab colors, warm and cool colors. He knows the use of pencils, chalks, crayons, water colors, finger paints. He knows that color hues and tones can be changed by mixing or by applying one over the other. He can distinguish pictures of various types: landscapes, portraits, story-telling, imaginary people, animals. He is able to recognize some of the world's great paintings. He knows the joy of using clay to express form and shape.

He knows the use of simple rhythm instruments, recognizes rhythms that are similar, and distinguishes those that are different. He is able to count time and sometimes to recognize measure and accent and repeated rhythmic pattern when listening to music. With the school *and the home* as factors, he may have some knowledge of the notes of the scale and recognize bars, the key of C, the key of F and perhaps the staff, the whole note, the half note, and the quarter note. He can recognize some musical instruments by sound as well as by sight and recognize some of the world's masterpieces by sound, if not by name and composer. He sees the color and hears the music in nature about him.

Intermediate Period. He develops an understanding of the mood and meaning of music. He recognizes the contributions of various musical elements and instruments to the total effect. He understands that music plays an important role in the life and culture of races and nations; that certain musical selections "fit" the times of certain historical periods and events.

He recognizes the mood, meaning, and beauty of painting, sculpture, and ceramics, and realizes that they contribute to living, are influenced by and exert influence upon man's history and culture, and that they are made up of form, balance, color, composition, feeling.

He has definite ideas as to the essential features of a good picture, of good clothing, good architecture, good city design, good printing, and graceful dancing to appropriate rhythm. He knows the principles of color balance and harmony. He knows that cool colors recede and lend distance and that warm colors increase the appearance of size and nearness. He distinguishes between over-all and border designs, and learns to look for central figures or features in painting. He recognizes perspective and has some experience in using it.

He can use the common musical terms. He is familiar with some of the works of a few outstanding artists, sculptors, and composers. He has memorized a number of songs.

Upper-Grade Period. He is sensitive to the beauty of sound, color, form, design, and arrangement encountered in daily living. He knows something about the life and works of great artists, com-

posers, musicians, architects, poets, dramatists, and novelists. He has a working knowledge of many of the common media in art, the instruments in orchestras, and so forth. He knows some of the primary, secondary, and intermediate colors, and how to combine and use them effectively. He knows that there are many principles of design and composition and various movements or schools in art. He is able to recognize some of the world's masterpieces.

He knows some of the distinguishing features of good music, the use of melody and harmony in simple recorded music, something of the history of music and of the development of musical instruments and conventions. Some children may be able to distinguish the music of the great masters and the prominent national forms. He is familiar with the ballads and folk songs of his community. He has a growing artistic and musical vocabulary.

B. Skill and Competence

Primary Period. He knows how to use simple rhythm instruments. He can skip to music in unison with others, clap hands to the rhythmic patterns of a new song, keep step to music, interpret rhythm through bodily movements, quickly grasp the melody of a song, sing in tune without the piano, discover new tunes and patterns in music, and sing a few songs if provided with the words.

He is able to draw and paint, with some realism and detail, but —more important—with satisfaction to himself, the simple things that strike his fancy, such as trees, animals, and human figures. He uses pencils, crayons, paints, finger paints. He can create simple designs or reproduce them from memory. He can use margins in mountings, in written papers, and so on. He can use clay in simple pottery forms. He can weave simple mats and make simple constructions with paper, cardboard, metal.

He can listen to and observe, or plan to take part in, a dramatization. He can detect rhythms in poetry. He can derive meaning from poems concerning child life. He is developing skill in using his small muscles in the arts and crafts.

Intermediate Period. He has some of the skills necessary for art work in connection with study themes, for example, making pot-

tery, pictorial maps, murals, decorative fabrics, stage settings, puppets, dioramas. He can select appropriate music for programs. He has skill in such crafts as ceramics, metalwork, leatherwork, wood- or soap-carving. He can reproduce in imagination the sights, sounds, smells, feelings, and tastes suggested in stories and programs. He can folk dance in figures and sets—combining rhythm and muscle control.

He is able to read a simple melody, reproduce with voice or instrument the music he can read, blend his voice in part or unison singing, and play some simple musical instrument. He can operate recorders, wire or tape machines, and the like that are available in his school. He knows how to make musical instruments from simple materials.

He can follow the story in simple narrative poems and recognize allegory with little or no interpretation. His skill in expressing dramatic experiences is increasing.

He has some skill in many of the graphic arts. He tries to be accurate in drawing and uses shading to show depth. He knows how to select clothing, and chooses colors for a room or for a painting with some skill in use of hues, value, intensity, harmony. He applies esthetic principles in making airplane and boat models. He evaluates radio and television shows critically.

Upper-Grade Period. He is able to apply the principles of design and color combination in such situations as buying and wearing clothing, planning a home, interior decorating, redecorating, drawing a plan in perspective, drawing a room's interior, and arranging furniture.

He is able to suggest appropriate music for various occasions. He exercises creativity in suggesting (and sometimes helping to compose) music for songs, dances, and instruments. He is able to read music for singing, sings well enough to gain satisfaction from it, and otherwise participates with enjoyment in musical experiences. He is able to play an instrument, whirl a baton, or perform some skill of a like nature. He is able to respond to changes of rhythm in music and dancing.

He has skill in woodcarving, needlework, beadwork, leatherwork, and other crafts. He uses discrimination in his "consump-

tion" of motion pictures, radio, television, comics. He can apply standards of beauty and design in writing, drawing, and so on.

C. Attitude and Interest

Primary Period. The child enjoys listening to music, poetry, stories. He enjoys taking part in and attaining skill in dramatizations, singing, and work in graphic art and the crafts. He finds pleasure in color, sound, and form. He enjoys familiar songs, either as a listener or as a producer. He enjoys expressing himself through rhythm and through all the artistic media. He tends to be critical of his own performances at the same time that he acquires some judgment of quality and an appreciation of beauty.

Intermediate Period. He is interested in being inventive; in new and experimental art forms. He appreciates mood and feeling in musical compositions. He appreciates the contribution of music to experience in social studies, literature, and so forth. He enjoys carrying tunes singly or in groups and enjoys following the leader in vocal and instrumental productions. He enjoys music directly, on records, or on radio and television. He shows a growing appreciation of music, and develops tolerance and taste for wide variety in music.

He listens for picturesque and expressive words in stories, speech, drama. He is interested in adventure stories. He appreciates books and cares for them accordingly. He enjoys various types of literary materials—poems, drama, science stories, biographies. He forms judgments of literary materials.

He enjoys trips to museums, art galleries, and the opera. He appreciates good workmanship and design in commercial products.

Upper-Grade Period. He enjoys singing, playing in band, marching in drum corps, dancing. He enjoys a wide range of listening experiences in music.

He enjoys wide reading as a leisure-time activity, both when alone and with others. He appreciates subtlety in literature, art, humor, beauty. He enjoys wide variety of dramatic art and at least one of the many crafts. He appreciates beauty in the physical world with its vastness, complexity, and moral and intellectual

challenge. He appreciates the esthetic interests of others. He regards esthetic experience as personal and creative. He is constructively critical of new and experimental art forms.

D. Action Pattern

Primary Period. The child tends to seek vicarious adventure through books, radio, movies, and television, and to relieve his feelings and tensions through these media as well as through art, music, and other creative work. He frequently looks at picture books and magazines, and occasionally reads brief stories not directly related to his school work. The stories sometimes deal with primitive ways of producing music and graphic art, of writing, of reading and communication, of calculating, and of producing and using utensils and tools. He tends to carry over his school esthetic experiences into life outside school.

Intermediate Period. He engages in creative social activities, and utilizes community resources in art, music, museums, institutes, parks, theaters. He has a critical but friendly attitude toward experimental esthetic expression and production. He listens to good music and sings and plays to produce good music, solo and in groups. He uses color with discrimination in a wide range of situations. He reads fiction and nonfiction voluntarily. He initiates and carries art and craft projects to completion.

Upper-Grade Period. He searches habitually and critically for artistic experience, for beauty, and for opportunities for creative self-expression, both in and out of school. He extends his experience in artistic expression in a preferred medium. At the same time, he gains experience in observing, enjoying, and critically appraising works of art.

E. Determining Conditions

Primary Period. Not all children possess the talent for artistic expression that is of importance to some, but it seems clear that creative activity may play an important role in personal development. By the third grade, each child should have had experience and guidance with a variety of media for this purpose. It is probably not worthwhile, with the devices currently available, to at-

tempt the measurement of personal gains achieved through creative work nor the excellence of artistic judgment. It is, however, possible to record interest and participation. The difficulty of measurement should not lead us to underestimate the importance of this sphere of development.

Intermediate Period. Facility and interest are determined by many factors in the culture, in the home, in the class level, in the individual experience, in the rate and stage of maturation and development, and in emotional stability. The school must never be insensitive to the danger in teaching formal music and art before children learn to sing and to enjoy listening, or to draw and to enjoy form and color. It must understand and guard against the dangers in giving all children the same experiences in music or art at the same time. Individual differences are as wide here as in reading, arithmetic, or any other attribute. When esthetic experience is made a part of large inclusive units, the opportunities to individualize it multiply.

Upper-Grade Period. Beginning with kindergarten and extending through life, the cultural level of the family is highly influential in affecting the sensitivity to sound, smell, color, and feeling that are so much a part of esthetic experience. The cultural level is in turn greatly influenced by the physical environment. The "born" musician or artist may have been so born both because of where he was born and because of what was born into him. The job of the school is to develop sensitivity, to supplement experience where it is deficient, and to provide the pleasantness or "rewardingness" that is so great a part of esthetic experience. There must be opportunity for the most talented, but no frustration or failure for the least adept.

8. Communication

This large and important section covers the wide variety of means by which man communicates with man. It emphasizes the mechanical and skill aspects of reading, writing, composition, correct usage, spelling, punctuation, speaking, and listening. It includes use of the library and of references of various kinds. It includes group skills, such as conducting and participating in meetings. It stresses the various constructive uses to which communication skills must be put, if their mastery is to be of value.

A. Knowledge and Understanding

Primary Period. The child should be able to recognize at once the words that are part of his basic reading sight-vocabulary, and to define many common words that he uses orally, including common abstract terms. He knows how to read the period at the end of sentences (and some children will read quotation marks around direct quotations, question marks, and exclamation marks). He should be building a proper acquaintance with children's literature. He should understand that many words "pair off" as opposites. He should be able to distinguish between the names of persons and things and the action words. Basic to his understanding of communication is his growing recognition that words and sentences are useful only as they have meaning for him.

He should be able to name and recognize all the letters of the alphabet in random order and to repeat the alphabet. He should be able to spell from dictation 7 out of 10 unfamiliar one-syllable words if they are completely phonetic. He should be able to spell from 500 to 700 of the most commonly used words. Children should know the common sounds (in words) that go with the letters that represent them. They should recognize simple phonetic clues in spelling and use simple word-analysis techniques as an aid in spelling. They should know the standards for letter formation, spacing and alignment, in manuscript or cursive form.

Intermediate Period. The child has a growing vocabulary of social, scientific, quantitative, physical, esthetic, and technical words: perhaps 7,500 spoken words, and 15,000 words comprehended.[1]

[1] Throughout this study, there are many references to desirable vocabulary size, to reading rate in terms of words per minute, or to other word skills in terms of so many in ten that can be handled successfully, etc. There are some inconsistencies in these statements, probably because of dependence upon a reference to different research. For example, one early set of vocabulary studies was made with samples from an abridged dictionary, since it was assumed that children would know very few of the words in the unabridged dictionary. Then R. H. Seashore and some of his students made studies with samples of words taken from the unabridged dictionary. They found the "comprehension" vocabulary of children to be at least twice as large as that indicated by the figures in the earlier studies. (See Seashore, Robert H., and Lois D. Eckerson, "The Measurement of Individual Differences in General English Vocabularies," *Journal of Educational Psychology*, vol. 31, Jan., 1940, pp. 14–38.)

He knows many of the symbols used in maps, diagrams, arithmetic problems, and simple scientific materials. Many children will know how to spell 1,500 common words plus special words in areas of interest. Many have a reading vocabulary of 5,000 or 6,000 words.

At this period the child knows where to find source materials on a wide variety of subjects, and how to use the table of contents of a book, its index, glossary, footnotes, appendix, paragraph headings. He also knows how to use a dictionary, an encyclopedia, card catalogues, an atlas, and *Who's Who*. He knows the parts of speech, the various kinds of sentences, and the correct letter forms. He knows how to classify words, as to their indicating "color," "sound," "form," and "size."

Upper-Grade Period. He recognizes his personal deficiencies and knows some ways of self-improvement. He realizes that spoken and written language has structure and notices the structural differences in the common types of sentences. He recognizes the differences between textbooks, reference books, and books which entertain. He knows the differences in form between direct and indirect discourse, and can distinguish between the forms used in friendly and business letters.

He distinguishes between literature that is plausible and convincing and that which misrepresents reality; between literature that is original and imaginative and that which depends upon formula and cliché. He distinguishes between literal and metaphorical language. He knows the proper occasions for using formal and informal language.

He has a reading comprehension vocabulary of approximately 8,000 to 10,000 words, and achieves 90 per cent accuracy in spelling such words as "admission," "discuss," and "eleventh." He spells correctly the words he needs in writing (2,000 common words plus such special terms as may be needed for written work in content subjects), and spells correctly from dictation 19 out of 20 completely phonic words.

He uses capital letters only where current usage requires them. He can read all common punctuation marks.

B. Skill and Competence

At no place in the suggested outcomes have consultants' opinions and critics' ratings been less in agreement than in the specific outcomes classified here under "communication." As a result, some inconsistencies in the juxtaposition of the very simple and the very difficult will be obvious, as will the degree of indefiniteness in some outcomes compared with the definiteness of others. The suspicion persists that many of the outcomes under "communication" are somewhat above those that may reasonably be expected of the "average" child. The consultants and critics appear more willing to relax early requirements with regard to the mechanics of number (computation) than they are with the mechanics of communication (spelling, grammar, capitalization).

Primary Period (*Reading*). The child does assigned reading by himself. He reads, first, to get the whole story, anticipates the story from its title, picks out the chief sentences, and is able to tell what each says. He reads to find answers—what, where, when, why. He can recall the sequence of a story or the facts read in a story. He can read a simple narrative of ten pages with comprehension and pleasure, if there are but few unfamiliar words. He can indicate the interesting features of a book by describing or dramatizing them. He can distinguish the chief elements of a story and repeat them. He can repeat the narrative of a story for children in the language of the author. He reads simple informational material with comprehension. He handles second-grade material in silent or oral reading easily, reading or pronouncing most of the words accurately. In third-grade material, he reads with a comprehension score of 80 per cent. He can read 7 out of 10 paragraphs of third-grade material and recognize many of the main ideas. Silent-reading rate should be between 95 and 120 words a minute; not over 30 regressions per 100 words of easy material; not over 140 fixations per 100 words of easy reading material. He makes but few reversals on letter forms, as "b" for "d," and rarely does he reverse letter sequence, writing "not" for "ton." He has a recognition span of at least four-letter

words, such as "come" or "hand." He reads with rhythmic eye movement and without lip movements or whispering.

(*Word Study*). He recognizes and produces the individual letter signs for the common blends. He can fuse two- or three-letter sounds into a single word and can recognize letters by their sound. He can recite the alphabet. He can sound out 6 out of 10 completely phonetic unfamiliar words. He grows in skill in attacking unfamiliar words: picks out new words in a story, notes how they differ from similar words, and notes context in an effort to find meanings.

(*Book and Library Skills*). He handles books properly, begins to use the index and table of contents in his search for information, and uses a children's dictionary or a picture dictionary to locate words or to find their spelling and meaning.

(*Speaking*). He converses easily, fearlessly, confidently, and fluently with children and with adults. He gives simple oral directions clearly, makes telephone calls efficiently and courteously, gives interesting reports on personal and group experiences, choosing interesting incidents to relate.

He contributes to group sessions and enterprises by sharing his experiences, giving directions to others, suggesting activities, and arranging classroom furniture for effective work and communication. He suggests reasonable solutions to immediate problems of group behavior.

He can plan a short talk, can make oral announcements, give clear directions, describe and discuss ideas obtained from reading, motion pictures, and the like. He can present short reports on trips, interviews, books. He can dramatize stories, impersonate characters, develop dialogue, and pronounce correctly the words he uses. He speaks with sufficient volume and clarity and does not use baby-talk or show evidence of avoidable speech defects. In speaking, he avoids errors that are not common in his home or community.

(*Spelling*). He can spell 400 common one- or two-syllable words. He uses simple generalizations and some knowledge of phonetics, consonants, and vowel sounds as aids in spelling. He knows how

to use an apostrophe in a few simple words such as "don't." He is able to form simple plurals.

(*Handwriting*). He can write legibly with a pencil and perhaps with a ball-point or fountain pen (either manuscript or cursive writing). He keeps a reasonably even margin, and is able to form most capital and small letters correctly if given time. He writes his own name well, maintains good posture in writing, and can write legibly 40 letters a minute or 60 letters a minute if the material is repetitive (quality of 50 on Ayres scale is sometimes recommended). Not more than 3 out of 25 of his written words should require study before they can be read. He should be able to form the letters of the alphabet in their correct proportions, and to space properly above and below the base line.

(*Composition*). He is acquiring a "sentence sense." He uses capitals to begin sentences and for proper names, uses a period at the end of sentences, and groups together two or more sentences that follow each other easily.

He is able to compose and write simple letters independently with at least a realization that there should be a heading, salutation, message, complimentary close, and signature. He should be able to copy forms for writing friendly notes, letters of thanks, letters of request, and letters of invitation. He should be able to write notes to parents about school events.

He should be able to write a one-paragraph story, using some descriptive words about people. He should be able to write his street address (city, state, and country) and the date.

(*Listening*). He listens carefully in order to comprehend simple statements in direct conversation or in audiences, and puts in writing ideas that concern him. He is able to remember a series of three or more steps when listening to directions, and can write a short sentence from dictation.

Intermediate Period (*Reading*). He reads and follows printed directions involving two or more steps. He comprehends simple descriptions of unfamiliar scenes or activities. Sixth-grade materials should be read with full understanding. He can follow the main action in stories 50 pages long. He is able to anticipate stories from titles and chapter headings. He listens for the continuity in

stories. He is able to skim quickly. He can select appropriate titles for paragraphs that are read or written. He is able to pronounce and syllabify 7 out of 10 three-syllable words.

He knows how to look up words, subjects, people, and select and note relevant items. He is able to distinguish between recreation and required reading and develops different reading skills for each. He can use a card catalogue, a readers' guide, an almanac, encyclopedia, and is familiar with the standard library and reference skills.

He reads critically and analytically, and compares sources of information. He notes essential details and generalizations in written and spoken presentations, picking out main ideas and subordinate ideas, and key sentences. He can read 8 out of 10 sixth-grade sentences and answer 4 out of 5 questions concerning them. He reads silently at the rate of 200 words a minute (if not beyond Thorndike's 3,000 and not over 300 different words per 1,000).

He reads with rhythmic eye movements, good eye span (not over 100 fixations per 100 words of fourth-grade material and not over 20 regressions per 100 words). He hits 85 per cent of the lines on the return sweep of the eyes.

(*Composition*). Within the limits of his stage of development, he can express himself in writing. He follows an orderly arrangement of ideas; develops well-organized paragraphs centered around a topic; uses correct grammar, capitalization, punctuation, sentence structure, and spelling; and chooses words within the range of his experience. He uses a separate paragraph for each direct quotation.

He begins to avoid run-on or stringy sentences. He can write correctly 9 out of 10 simple 5- to 10-word sentences. His verbs and subjects agree in number in 9 out of 10 of his written sentences. He tries to distinguish between adjectives and adverbs. He attempts to form good opening and closing sentences, and can use an occasional compound or complex sentence.

He uses periods at the ends of sentences and after abbreviations, uses question marks and exclamation marks, and begins to use commas where needed. He knows how to read commas and

apostrophes. In order to get the meaning, he notes transition words and phrases (yet, but, and, however, on the other hand).

He avoids using general words when specific words are better. He tries to keep pronoun and verb in a proper relationship. He uses capital letters for names, initials, book titles.

(*Vocabulary*). He grows in skill to "see" and to look up doubtful or misspelled words, and to discriminate between words of similar appearance. He uses common spelling aids and rules.

(*Speaking*). He participates skillfully in group discussions by listening, speaking, being part of the group, following discussions to their major conclusions, and drawing everyone into the discussion. He is able to conduct club meetings, address the chair, make motions, and elect officers. He can make reports on classroom activities or report to the group as a representative. He can organize a report from several sources. He adapts his voice and language usage to the audience, size of room, and the occasion.

He speaks with good tonal quality, pronounces words correctly, and enunciates clearly, using words within his experience that are adequate for his purpose. He avoids the most flagrant errors in grammar and tries to overcome his own errors. He observes the conventional courtesies in his oral and written communications.

(*Handwriting*). He uses a good slant, good form, and spacing, and has a sense of rhythm. He tries to have good posture. He writes with increasing speed and legibility. He can use a fountain pen (a ball-point may help him if left-handed). He can analyze and rate his own handwriting skill.

Upper-Grade Period (*Reading*). He reads understandingly in many fields, such as mathematics, history, and science. He reads and follows descriptions, directions, expositions, and the main action in novels. He relates items read to the larger themes of a paragraph or composition, and can reduce larger themes to simple summarizing sentences. In simple reading, he notes the sequence of ideas and identifies the author's outline. He relates material read to his present knowledge.

He adjusts his style of reading to his purpose and to the material read. He reads aloud to inform, persuade, or entertain. He

appreciates the point of cartoons, and can read simple diagrams, graphs, and tables.

He selects reading materials by referring to the index and topic headings, and by skimming. Within fifteen minutes, he can decide if the book is of value to him.

He reads silently at the rate of 250 words a minute. There should not be over 80 fixations or 10 regressions per 100 words of sixth-grade difficulty, and he should hit 95 per cent of lines accurately on the return sweep. He should have a recognition span of 10 spaces—2 or 3 words and no reversals in reading should be expected at this level.

(*Composition*). He can make outlines with 2 (or even 3) degrees of subordination. He assembles material from two or more related sources. He can follow a coherent sequence in writing, and writes simple, clear compositions. He writes social or business letters that are clear, accurate, tactful, friendly, courteous, and correct. He can express sympathy tactfully.

(*Language*). He proofreads his own writing for spelling, punctuation, capitals, and grammar. He can check his writing for clarity and selects words that express meaning. He uses complex sentences correctly when necessary.

(*Speaking*). He can make 5- to 10-minute reports on topics within his grasp. He avoids the more obvious errors in grammar, usually uses correct and socially acceptable verb and pronoun forms, and pronounces most new phonetic words correctly.

He can make clear class reports. He can discuss simple problems in ethics, behavior, current affairs. He frequently develops some skill in playing parts in dramatizations. He tries to use a well-modulated speaking voice.

(*Library Skills*). He uses card catalogues, a readers' guide, an almanac, and encyclopedia as needed. He is familiar with the standard library and reference skills.

(*Spelling and Word Study*). He can syllabify five-syllable words and can divide words into prefix, root, and suffix. He knows the meaning of many common prefixes and suffixes. He continues to expand his skills in spelling and in varied spelling rules.

(*Writing*). He writes smoothly with a fused finger and arm movement. He can use any type of pen or pencil on ruled or unruled paper. A literate strange adult can read most of his writing easily—there is not more than one illegible word in 100. A pupil can form 110 letters per minute in writing repetitive material with a score of 60 on the Ayres scale. His ordinary cursive writing is legible when written at 80 letters per minute. He learns to use a typewriter if one is available.

C. Attitude and Interest

Primary Period. The child likes to write short friendly notes, to read for recreation or information, to talk and listen to others respectfully and thoughtfully, to recite poems, and to retell favorite stories. He is interested in the sounds of words in word-families, in rhymes, in secret languages and codes. He characterizes his efforts in absolute terms of good and bad. He begins to develop attitudes toward radio and television programs.

Intermediate Period. He is developing an interest in evaluating his communication skills in an effort to overcome his errors and tends to be critical of his own performance in reading, writing, speaking. He enjoys a wide variety of reading materials, and relates his reading to this past experience. He reads and listens critically and expresses opinions frankly. He enjoys listening as well as talking, and takes pleasure in gratifying intellectual curiosity. He regards reading as an important source of information; he enjoys newspapers and magazines as well as books. He reads to further his hobby interests, and enjoys using reference books and newspapers. He enjoys communicating in groups and using group skills. He gets pleasure from composing stories, writing letters, making up rhymes and expressive phrases and sentences. He enjoys literature but is not hesitant in making choices between types.

Upper-Grade Period. He reads to develop and expand his interests and hobbies. His areas of reading expand rapidly with his growing interests and activities. He listens as a means of learning, securing pleasure from doing so, and is interested in the voice quality, facial expressions, gestures, and personal characteristics

of those to whom he listens. He enjoys the variations of regional speech. He listens critically to news broadcasts and radio commentaries. He enjoys writing to a wide circle of friends. He assumes responsibility for and wants to produce neat written work, to spell accurately, to speak and write correctly and attractively. He is able to describe and interpret pictures. He enjoys telling jokes that seem humorous to him and his group.

D. Action Pattern

Primary Period. The child habitually listens to others while they talk or give reports and he waits until they have finished or for an appropriate opportunity to speak. He finds good reading materials and shares them with others, both through reading aloud and through recommending poems, stories, plays, and news items. He habitually reads to others to inform, to help solve a group problem, and to entertain. He reads more rapidly silently than orally. He looks for information in books and reads for meaning. He voluntarily reads magazines and newspapers and books designed for children, and reads poetry and stories for personal pleasure.

He uses the picture dictionary in the library, and habitually studies new words and words he is uncertain about spelling. He writes occasional brief stories for fun. He contributes to class discussions at least briefly each day, and asks questions about topics that interest him. He tries to establish habits of correct usage in oral communication.

Intermediate Period. He reads nonfiction and fiction extensively with increasing speed and comprehension and takes notes on interesting items. He speaks with emphasis. He voluntarily writes stories and poems and independently proofreads and corrects his own productions, using references when necessary. He uses good sentence structure when speaking formally. He spells and pronounces correctly, even when he is to be sole judge of what he produces. He reads in order to be able to contribute to his group or to verify and fortify his opinions and arguments. He reads to entertain himself and others, or to share pleasant experiences. He listens to others with care. He does not monopolize a conversation

or discussion, but feels free to contribute timely comments when it seems advisable. He habitually relaxes when writing, and tries to write attractively and clearly.

He reads with little if any whispering or lip movement. He reads critically for content. He tries to increase his vocabulary.

Upper-Grade Period. He reads with a purpose—either assigned or self-assumed: to answer questions, solve problems, develop topics, gain pleasure. Sometimes his purpose is different from the author's, but he tries to understand the author's purpose. He looks for and evaluates bias in newspapers and books, and in individual writers. He reads with critical discrimination as to source, relevancy, and dependability of facts. He follows a systematic reading plan when studying.

He is aware of the quality and use of his own voice. In conversation and group communication, he avoids boring people, knows when to keep silent, shifts the subject of conversation when advisable, and uses experiences, anecdotes, and reading to contribute to the success of a conversation. He follows the contributions of others carefully.

He analyzes his handwriting difficulties and tries to avoid them; he avoids eccentricities in style.

E. Determining Conditions

Primary Period. A nine-year-old child is maturing and his span of attention is lengthening to the extent that he can sustain it for a period of twenty minutes or longer.

In our culture the middle-class child is under tremendous pressure from his home to learn to read and to master the other verbal skills. Care must be taken that the schools do not increase these pressures unduly. Lower-class children do not feel the same pressures outside of school and, hence, may lack motivation for the mastery of many of the verbal skills. Thus, the determining conditions differ greatly from child to child. The child shows high identification with parental values, such as attitudes toward the school and teacher, aggression, religion, and moral behavior, though he cannot discuss these matters much beyond expressing parental opinions.

Intermediate Period. Communication skills are influenced by parental attitudes, family background. Reading comprehension tends to catch up with comprehension of spoken language. The home influence is very strong in its effect on the development of communication skills. For many children the language of the school is so "foreign" as to present a very great learning difficulty. Sometimes, it seems to him relatively unnecessary to expend effort in mastering it.

Upper-Grade Period. The various determinants that operate in other areas operate here as well. Illustrative of their subtle effects are the differences between the verbal skills and interests of boys and girls at these ages. Many boys regard English as a "sissy" subject. Has the context of the communication curriculum been unconsciously "feminine" in nature? How many other factors might be operating? What are they?

9. Quantitative Relationships

Here we find arithmetic and the elementary aspects of algebra and geometry. Here children are introduced to a great variety of measures by which man describes in quantities the things he finds in his world. This involves the ability to analyze and solve problems on the basis of the particular problem, the information needed to solve it, and how to get the information. Emphasis is placed on giving the child an understanding of how our number system works and why, so that he will have greater competence in using numbers. Since mathematics is the language of quantity, it could be included as another means of communication, but it is so important and specialized that it is considered separately.

A. Knowledge and Understanding

Primary Period. The child understands, reads, and writes three or four place numbers. He understands some of the simple similarities between modern modes of counting and calculating and those used by peoples in earlier times. He understands that to have meaning numbers must apply to a quantity of something. With his home and his community as factors, he is able to apply numbers to the months in a year, eggs in a dozen, pennies in a dime, quarter or dollar, minutes in an hour, inches in a foot, feet

in a yard, and pints in a quart (as these are within the range of the child's experiences). He understands the common liquid and dry measures, weights, the calendar and the clock, United States coinage. He understands addition and subtraction, division and multiplication. He understands the concept but not necessarily the symbol of the common fraction. He understands arithmetic symbols such as plus, minus, multiplied by, divided by, equals, dollar sign. He can read Roman numerals up to X. He knows the abbreviations for the common units of money and of time. He understands general quantitative words, such as many, seldom, often, much, little. He masters the simple combinations in addition, subtraction, and multiplication with high accuracy.[1]

Intermediate Period. He understands something of the history of mathematics, how our number system grew, how measurement differs even today from country to country.

He understands that arithmetic is the language of quantity, of measure, of amount, of size, and of relationship. He knows how numbers apply to time, weight, dry and liquid measures. He understands how to measure to the nearest whole, how to measure by "size groups," the place-value of numerals, and the use of zero to "hold a place." He understands that we deal with the powers of ten and the divisions of one (in combination) in the same way that we deal with ones, using "position" to keep the divisions clear. He distinguishes the features of each of the three kinds of problems.[2]

He has insight into simple fractions and ratios as quantities in relation to one another. He sees the fraction as a measure of relationship. To him, fractions are divisions of units or amounts into parts of equal size. He sees the relationship of division to fractions, and understands decimals as fractions or as small units or parts of larger units, with their places held by a decimal point and zeros or columns. He understands the meaning of each of the four fundamental processes and should be able to repeat all the fundamental combinations.

[1] Great variation is to be found in all of this, because some children may develop temporary or even permanent dislikes for some or all aspects of mathematics, which is balanced often by some other interest. This would be true of other subjects also.

[2] This understanding should be implicit in the children's operations with numbers, rather than an explicit understanding that they can state and demonstrate.

Upper-Grade Period.[1] He knows some of the interesting history of the development of arithmetic. He knows the distinguishing differences between the Hindu-Arabic system of numeration and other systems. He sees some of the hidden relations of English measures with the obvious relations of the metric measures. He knows the importance of the work of the Bureau of Standards. He knows how the procedures of calculating and of relating numbers have, in each case, general applicability, and he regards an algebraic formula or equation as a statement of a general principle. He knows that there is a relationship between the development of mathematics and the development of science. He distinguishes the features of each of the three kinds of problems in percentage. He understands basic principles of plane surface and cubic measurement. He understands newspaper reports of significant market quotations and other data on economic developments. He reads newspaper and magazine accounts relating to tax measures and policies with growing comprehension of the arithmetic involved. He reads with comprehension such familiar quantitative terms as "net decrease," "Central Standard Time," "wage scale," "dollar exchange," "premium," "principal," "r.p.m.," "dimension," and the various liquid and linear measures. He can read any number up to 1,000,000 or any common or decimal fraction. He has a growing mathematical vocabulary. He knows how to read symbols such as ′ (to designate minutes), ″ (seconds), and the abbreviations for cubic measure.

B. Skill and Competence

Primary Period. He knows the correct answers to most of the fundamental combinations and can solve simple one-step problems in which the words are within the pupil's reading vocabulary, and the subject matter is within the child's experience. He can count by 2's, 3's, 4's, 5's, and 10's up to 50 or 100. Sometimes he learns to count backward in the same way. He can master such tasks as tallying votes in a class election. He follows the

[1] As in many other instances, many of these goals are optional in the sense of being illustrative.

principle that we deal with tens in combinations the same way we deal with ones, using the position of the numerals to keep the answers clear. He is able to bridge the tens. He is able to write the digits from zero to nine correctly. He can add, subtract, multiply, and divide in the ones and tens and can "carry" in each process. He can multiply with a one-figure multiplier and a multiplicand not exceeding three digits. He can demonstrate simple fraction problems with concrete materials, dividing them into halves, thirds, and fourths.

He can handle simple problems arising in his everyday life. He can tell time, using minutes, quarter hours, and hours. He can use units of money, such as a penny, nickel, dime, quarter, when shown the coins, and can make change from a dime and a quarter with accuracy.

Intermediate Period. He can recognize common geometric shapes, and can read simple common fractions, and numbers with four digits. He has an arithmetic vocabulary (comprehension) of perhaps 250 words. He can handle addition and subtraction with fractions (½, ¼, ⅓, ⅕) and mixed numbers ($3\frac{1}{2} + 2\frac{1}{4}$).

He can make simple computations without writing the numbers. He performs four fundamental processes, including long division, with whole numbers with a high degree of accuracy. He can add, subtract, and multiply decimals. He can solve simple one-step problems and two-step problems in which the words and subject matter are familiar to children. He can subtract up to 3-digit whole numbers. He can use common fractions in the solution of problems involved in prices at the store, instructions in baking, and so on. He chooses appropriate mathematical processes for simple problems, can keep financial records, and can write Roman numerals to XX and read them beyond that.

Upper-Grade Period. He can perform all the fundamental processes in dealing with decimals. He can deal with percentages as hundredths. He is able to find at least the following percentages: 5, 10, 20, 25, $33\frac{1}{3}$, 40, 50, $66\frac{2}{3}$, 75, 80, 90, 100, and the same percentages plus 100. He can use percentage in dealing with practical problems, for example, a 5 per cent sales tax, a 20 per cent tax on a bill of goods, sports data, and so on.

He is able to see the relation between common fractions, decimal fractions, and percentages, and to express one in terms of the others. He can compute simple interest with the aid of decimal fractions. He can compute the costs of various quantities of materials when the unit cost is given. He is able to calculate simple interest. He can read simple formulas, such as those relating to the radius and circumference of a circle, and can read arithmetic materials without faltering and stumbling.

C. Attitude and Interest

Primary Period. The child has a respectful attitude toward the usefulness of arithmetic and its practical and scientific applications.

Intermediate Period. He has developed a respect for the value and effectiveness of mathematics. He enjoys estimating, playing with "short cuts," and number magic. He respects accuracy and arithmetical orderliness.

Upper-Grade Period. He appreciates the development and significance of measurement, and the importance of its use in all branches of science. He approaches quantitative problems and the manipulation of mathematical symbols in matter-of-fact fashion, just as he would approach a problem in the arrangement of furniture or the use of verbal symbols, without unrealistic fear of his own ability, or emotional reaction against mathematics as such.

D. Action Pattern

Primary Period. The child habitually regards arithmetic examples and problems as questions. He tends to consider quantities in terms of their excess or deficiency in relation to other quantities. He thinks in terms of measurable amounts or countable units, such as inches, pints, minutes, and cents. In descriptions or discussions of events or situations, he habitually looks for the statements that contain numbers. He does not try to add unlike quantities such as pencils and marbles.

He is able to handle his own financial transactions. He reads and writes three- and four-place numbers. He can derive division combinations from multiplication, can use numerals in asking

and answering questions, and can apply numbers in keeping game scores, marketing, and so forth. He is able to read dates, sizes in shoes and clothing, radio and television dials, book page numbers, house numbers, serial numbers, his own weight on the scales. He is able to measure the dimensions of objects, mark off a sheet of paper with a ruler into square inches, and measure the quantities of liquids with a measuring receptacle.

Intermediate Period. He checks computations carefully. He has a growing tendency to deal with quantity, as he encounters it, in precise and definite terms. He searches for the meaning behind the number or the numerical relationships he uses. He begins to make estimates and to check their approximate accuracy.

He is able to measure areas and perimeters of simple plane figures. He can interpret scale drawings, and can construct and read line and bar graphs. He can use and can read the abbreviations of the common units of measure: foot, inch, year, rod, mile, acre, pint, quart, gallon, peck, bushel.

Upper-Grade Period. He shows a growing tendency to compare and compute without benefit of paper and pencil, as well as to take pencil in hand and work out arithmetical solutions when problems present themselves in the social and physical sciences, and in everyday living. He habitually searches for insight into the meaning of mathematical data as he encounters them.

He can measure a circle, construct a simple graph, make a budget, keep a cash account, use common units of cubic measure (inch, foot, yard), and compute the volume of common solids. He can compute areas of common plane figures, compute averages in a number of practical situations, and solve problems involving minutes and hours, months and days. He can use proportion in practical problems. He can read and interpret costs from electric, gas, and water meters and can estimate quantities of goods or materials needed.

E. Determining Conditions

Primary Period. Young children come to grips with numbers in much the same way that they learn by experience in other areas. Quantity as it involves size in space, existence in time, appearance

in terms of distance must be encountered successfully before the growing infant can learn to manipulate his own body and his simple utensils and toys with more than random effect. At the time of entering school, the child has had much experience with quantity. The main problems of the early school involve two tasks: (1) to further enrich quantitative experience, and (2) to provide spoken and written symbols with which to think and communicate quantitatively. (Remember that thinking, even on this level, involves generalizing in a simple way.)

There will be great individual differences in children in innate ability and in early quantitative experiences. Respect or disrespect for numbers and the extent of the desire to learn arithmetic will be affected by family background.

Intermediate Period. The effect of many of the old textbooks and courses of study was to provide a store of memorized answers and processes that could be used and applied to a limited extent without much insight. Many parents and teachers suffer from that kind of mathematical training. Though they may have developed insight for themselves, they do not remember how they developed it, not having had the experience of being taught to see the basic reasonableness and usefulness of arithmetic processes.

The variety of insights, understandings, and generalizations stressed as outcomes by the consultants in this study demands a type of teaching that provides a wide experience in solving problems that have practical application to the real problems faced by children. The more closely mathematical education, or other education for that matter, can be related in the early years to its basis in the interesting experiences of the children, the more effective education will be in developing the basic understanding of the number system that is necessary later on in more extensive and advanced areas.

Upper-Grade Period. At age fifteen, the growing child will show a much wider and more competent understanding of quantity than he did at earlier ages. His interests will be colored by such things as his growing assessment of his own abilities, his own vocational choice, and his own personal hobbies and idiosyncrasies.

He will learn to use mathematics as a tool for competent living, for avoiding mistakes, for buying insurance, for estimating "braking distances" with automobiles, for avoiding being taken advantage of in business deals. These things are in tune with his pride in his growing independence and maturity of judgment.

The opportunities for taking mathematics out from the textbooks into life all about the children are increasingly numerous and are being increasingly exploited in the new learning aids, curriculums, materials of instruction.

Part Three

IMPLICATIONS FOR EDUCATIONAL PRACTICE, RESEARCH, AND MEASUREMENT

The goals and outcomes summarized in Part Two have implications for everyone concerned with the elementary schools. Some of the special and more technical implications will be discussed later in this section. First, some consideration will be given to meanings that are of general interest.

IMPLICATIONS FOR SCHOOLS AND THE PUBLIC

One will look in vain in Part Two for evidence of concealed or unconscious political bias. The variety resulting from the contributions of thirteen consultants would have served to eliminate such bias had any been present. The major point of emphasis in the outcomes is that social and political issues are to be studied, but solutions or answers, though sought after, are not provided. The conscious and openly expressed bias is for democracy in the American tradition.

Important Points of Emphasis

The patriotic dimensions of citizenship are seen in the insistence on democratic procedure and democratic understanding, in the emphasis on the respect for the rights of the individual, in the emphasis on the respect due all people regardless of race, religion, or national origin, and in the expectation that children will learn about the Constitution of the United States, the framework of its government, and the traditions that go to make up the American way of life.

The recommendations stress again and again the need for skill in reading, writing, arithmetic, science, spelling, speaking, prob-

lem-solving, geography, history, language, civics, health, and all the other fundamental knowledges, skills, and competences. They emphasize the fact that children must themselves see and feel the need for finding out—for learning. A review of the "knowledge and skill" outcomes dispels any idea that leaders in elementary education would de-emphasize solid content. This becomes more obvious when it is remembered that the recommended goals are not objectives that only the brightest are meant to attain. The old-fashioned knowledges and skills are there, and they are not "watered down."

In a difficult curriculum there is always the danger that the less able, the slow maturing, the handicapped, the sensitive, and the insecure may become victimized by failure and frustration in competition with the more favored. The consultants do not foster the mistaken view that learning need be competitive to be effective. Throughout Part Two, wherever determining conditions are mentioned, we find many references to the wide range in individual differences, to the variations in the rate of growth and development, and to the effects of different communities and of different types of homes and cultures on children. In many of its aspects, learning is an individual enterprise.

It should be equally obvious that the goals include the cultural subjects: art, music, dramatics, literature, poetry, and the crafts. Reading, arithmetic, science, social science, and the other "subjects" are also cultural and are so considered. The goals include the moral and ethical concepts and habit patterns. The ideals inherent in the democratic concept have been mentioned already. The concepts of honesty, of value given for value received, of reverence, of brotherhood, of fair play, and of concern for one's family and community responsibilities are illustrative of this emphasis.

The various social skills that are necessary if people are to get along with their neighbors, with their co-workers "at the office" or "on the job," with their families, their friends, and with their fellow-citizens are stressed repeatedly. The ability to understand one's fellows and to work with them without loss of identity or

integrity is inherent in many of the outcomes. Closely related is the emphasis on mental health, on personality, on the development of stability and security in a physical, social, and personal environment.

There is emphasis throughout on recreation, mainly from the standpoint of participation in creative activities important to esthetic growth, participation in health and physical education, in hobbies that may grow into vocations and avocations, and in games that involve physical and intellectual competition.

It is difficult to find in these outcomes the "fads and frills" against which critics frequently inveigh. When topics that are sometimes confused with fads and frills occur, the context shows that they are introduced for purposes that are basic to our culture. For example, "folk dancing" is not introduced so that children may be able to dance, valuable as that might be in some instances. A careful reference to the various broad areas and sections on attitudes and interests, to action patterns, and to determining conditions reveals that folk dancing provides children with opportunities for social development which they need at certain stages of growth, provides for practice in healthful rhythmic exercise that is circumscribed by the social niceties, provides pleasure at the same time that folk music can be used as an introduction to other types of "good" music, provides a structure in which boys and girls can develop desirable social skills, motivates the study of the cultures of various lands where the different folk dances originate, and thus in various ways contributes to the broad development of children.[1]

Education in our republic has come to be committed to the ideal that every child is entitled to his optimum development. In the practical situation Americans are not so clear as to what this means and how it is to be attained. The old-fashioned elementary school attempted to attain it, so far as the children who came to school and stayed in school were concerned, through assigning

[1] "Play is more than self-expression, it is self-discovery." Quoted from *Understanding Children's Play* by Ruth E. Hartley, Lawrence K. Frank, and Robert M. Goldenson, Columbia University Press, New York, 1952. This book is a fine source for background concerning much that once was called fads and frills.

books to read and facts to learn. The curriculum consisted of lists of words to be learned, lists of problems and processes to be mastered in arithmetic, reading skills and mechanics of correct writing to be acquired through drill exercises, and factual material in geography, history, government, science, and hygiene to be memorized.

In recent years the social value of much of this material (if properly learned, that is, so that it has functional value in life and does not serve merely for examination purposes) has been pretty well established. Much that is to be learned in this tradition has a high frequency of usage in everyday situations outside the school and is crucial in developing behavior desirable in our culture. For example, pupils are expected to spell the words that make up the great bulk of all written materials and to avoid or correct the errors that research has shown to occur most frequently in spoken and written English. The social value of the language and grammar taught has been checked by studying the everyday usage of "cultured" people. The arithmetic taught has been investigated to ensure its value in the quantitative thinking of men of affairs.

However, the teaching of this material frequently neglects certain very important facts now known about children and how they learn. To attempt to have every child in a grade pursue the same lesson in the same book at the same daily rate, reciting materials that all have supposedly read, would be destructive of the interest and enthusiasm of most of the children. The procedure would be a little like memorizing a dictionary or an encyclopedia.

The graded elementary school necessarily was designed with little knowledge of psychology, sociology, or mental or physical health. Little was known of the nature of the learning processes or of the nature and extent of individual and trait differences. Little was known or sensed about the physical and emotional maturation of children, little distinction made between intrinsic and extrinsic motivation.[1] Educators, in the main, were uncon-

[1] If a child studies his arithmetic so as to obtain an "A," in which case his father will allow him to go to camp, we call the child's motivation "extrinsic." If he studies his arithmetic because he is interested in building a boat at camp and will need his arithmetic to *do it*, we call his motivation "intrinsic."

scious of the tremendous impact on the learner of his family and his social class. The main qualification for the teacher was that he know more than the children about the textbooks to be studied and that he be able to maintain discipline. Teachers were poorly trained, poorly paid, and held in low respect.

Many of the beliefs held thirty years ago concerning elementary education are no longer professionally accepted. We know now that we cannot set the same learning goals for all pupils and that we cannot be highly specific in assigning the development of knowledges, skills, and abilities to definite grade levels. We no longer believe that failure or the threat of failure causes pupils to work harder and achieve more, or that pupils who are required to repeat grades or courses gain very much in the process. We do not believe that children are by nature stubborn and resistant to learning and that they must be forced to learn. We believe, instead, that children want to learn, try desperately to learn, and sometimes persist in their efforts to learn despite the most unfortunate and discouraging experiences. Throughout the recommendations of the Committee there are references to broad integrating attitudes and interests, to various levels of behavior, to inclusive action patterns, and to conditions that affect the learning of children. These provide an extensive source in which to find the means to avoid the shortcomings of the past. Thus, it appears that elementary education, like a bride's trousseau, should have something old and something new. This will be made more explicit in the next sections.

Basic Educational Concepts

Throughout the educational goals listed in this report we can see side by side items that are often identified with one or the other of two schools of thought. They differ from one another in emphasis on content and in their conception of the learning process as it involves bringing about behavioral changes in children. For convenience, one approach to the education of children may be called the "subject-matter" approach, the other the "activity" approach. There are, of course, many goals that are not closely or exclusively identified with either of these approaches.

The subject-matter approach has many designations. They are not all appropriate (some of them are epithets), but they are used to describe the subject-matter emphasis. For example, it has been called the traditional, the essentialist, the authoritarian, the Thorndikian, or the assignment-recitation-test approach. It has other names, too. The classroom in which it occurs in an extreme form is neat and genuinely quiet if the teacher is a success, but unruly when a teacher loses control. The children sit in rows. There is almost no group work. Children are marked on each assignment. The successful children cover their papers so others cannot copy. There is a temptation for less successful children under pressure to cheat. The teacher is the "boss." The children get their assignments, their ideas, their motivation from him. Children "ask" before they leave their seats. All children work "at" the same problems at the same time. A single textbook is the subject of most of the study and its "mastery" is the main objective. Bright children become bored; slow children become discouraged; disturbed children become delinquent.

The activity approach is sometimes called the progressive, the democratic, the Deweyian, the opportunistic, the holistic, the organismic, the experience-insight, or the pupil-teacher-parent planned approach. Some of the names here are inappropriate, too. The classroom in which this approach is used in an extreme form is sometimes noisy and disorderly, becoming riotous with an unsuccessful teacher. The children are never seated in rows but move about from group to clique to subgroup. There is never time to think or study. Children are not given marks and may or may not get their work done. Since there are few rules or requirements, few are broken. The children boss themselves with little maturity of judgment, to the satisfaction, if not the delight, of the teacher. No two want to work at the same thing. There are no textbooks. Bright children become monsters and all the pupils become wild and undisciplined.

The two foregoing descriptions, obviously, are stereotypes in the extreme. They seldom occur in the exaggerated forms detailed here, though an untrained observer might think he were seeing first one approach and then the other when entering the

same classroom on successive days. An untrained and uninformed observer entering a surgery might upon occasion misinterpret the work of professional people there, too.

Caswell and Foshay[1] tell of a study where descriptions such as these were circulated among educators who were supposed to believe either in a subject-matter or an opportunistic curriculum. The researchers could find no supporters for either position, since the positions were defined by educators who took opposing viewpoints!

A more realistic assessment of the actual situation in the classrooms of America is necessary. That assessment may grow out of this study—out of the goals proposed by the consultants and evaluated by the critics, and out of the research that will be forthcoming to measure and evaluate the goals.

There was little scientific examination of educational procedures in the elementary schools previous to 1920. There was little experimental evidence either to support or to modify what was being done. The only recourse then for sincere teachers was to resort to practicality, to reliance on what seemed to work best, to common sense. That was true from the days of the vernacular schools until after the dawn of the twentieth century. In many areas man has done pretty well on that basis, as he awaited the development of a better one. In this tradition some teachers still tend to place primary emphasis on the memorizing of facts and the learning of fundamental skills. They manage and make decisions for their children. They ask all the questions. They do most of the talking. They place emphasis upon, and take pride in, their discipline. They assign work from books and test the oral and written responses of the children to it. They work hard at their job. Their work is planned and organized step by step and attention is paid to variations in the achievements of the pupils.

In this same tradition of practicality and common sense, but with reliance on different theories and different areas of early research, some teachers still tend to emphasize activity, seemingly

[1] Caswell, Hollis L., and A. Wellesley Foshay, *Education in the Elementary School*. 2d. ed., American Book Co., New York, 1950, pp. 9–10.

for the mere sake of activity itself. The early emphasis on activity was, in a sense, a reaction against the older traditional practices. It sometimes took the direction of great reliance on individual activity and freedom, sometimes on group activity and group control. In one case, the activities "developed" from within the individual; in the other, from within the group.

Actually, each type of teacher uses some of the techniques and approaches of the other upon occasion, and each is concerned about the objectives and outcomes that are implicit in the other's approach.

Teachers *may* follow either of these approaches (or even a combination of them) without sampling with the pupils the wide range of goals proposed in this study, and without taking into account the suggestive insights regarding the personalities and learning abilities of developing children mentioned in Part Two.

After 1920 the new science of psychology and new knowledge in other fields threw more light on the problems of educating children. In the experimental spirit some teachers tend to place great emphasis on the individual differences in children and on the variations in the abilities of the individual child. Planning with the children, they devise activities and experiences intended to be interesting to them and conducive to learning not only the fundamental facts and skills, but also the basic social skills involved in democratic group living and the individual behaviors involved in moral-ethical behavior.

Quick classifications of children in terms of black-and-white, all-or-none alternatives are not only lacking in necessary meaning, they are also confusing. In addition to the wide range in individual differences among children, we must consider the great differences among classrooms, schools, communities, and the problems faced by teachers and classes in them. Besides many subtle differences that are sometimes hard to isolate and define, there are many obvious differences between rural and urban schools, among schools exclusively for Negroes, Indians, and Whites; among public, private, and parochial schools; and between schools in slum areas and those in well-to-do, country-club areas.

The attainable outcomes recommended by the Committee are broader than either of these two approaches. An examination of the grid[1] shows the breadth of these areas of emphasis. The first two columns are devoted to knowledge and understanding, and to skill and competence. In these columns will be found outcomes that have to do with such things as knowledge and skill in the mathematical processes, knowledge about racial, religious, and cultural differences among human beings, and knowledge of physical science and physical geography.

Looked at from a different "angle," the same "subjects" appear in the third column under attitude and interest. Because children respond emotionally to what they learn, there are references to such things as attitudes of respect for mathematics as the necessary tool of science and of progress. Regard for the rights of all human beings is present, as is interest in the effect on man of climate, rainfall, navigable waterways, and so on.

In the fourth column we find these same items in yet another context. Here they are identified in terms of what the pupil is expected to do about them or with them. Obviously, he must know the facts and have the skills, if he is to use them. Obviously, too, his interests and attitudes are reflected in his actions. Action patterns tend to be stated in broad and inclusive terms, as the word "pattern" would indicate.

Finally, in the last column, there are references to conditions that affect the ability and readiness of children to learn. Boys will be interested in aspects of certain problems that do not interest girls and *vice versa*. A child of the Everglades in Florida will react differently from the child on the plains of Montana, particularly if the child in the Everglades happens to be the son of an uneducated Seminole Indian and the boy on the plains the son of a wealthy, college-educated rancher.

These brief illustrations show the breadth of the goals of education as they have been set forth by the consultants, in contrast to the two "schools of thought" about which controversy often rages. Teachers and citizens who wish to broaden their viewpoints regarding the goals of education can use the grid in many

[1] See p. 34.

ways. He who would start with drill and memory work will be helped to see many of the applications in the activities and experiences of children. He will be assisted in relating facts and skills to interests, to motives, and to needs. He will be reminded of the conditions that affect the behavior of children. On the other hand, he who would start with activities and experiences will be reminded of the various tool subjects and skills that children will need. He will be provided with suggestive outcomes against which to check the progress of children and through which to interest and motivate classes.

There is bulk and diversity in the list of goals. This need not prove confusing if the reader clearly understands the nature of the goals and their limitations. The goals are a composite of the judgments of a large number of experts. They represent a systematized and organized synthesis of what a group of authorities considers possible and desirable. Accumulated in one outline, they *do not comprise a curriculum*. They must not be used as a checklist to see if this or that elementary school has a properly broad and inclusive set of objectives.[1] They are meant to serve an entirely different purpose. They are meant to suggest goals for study and for research in order that we may determine more clearly what can and what should be the goals of elementary education. They are meant to suggest areas from which selections can be made. They are meant to provide an experimental context from which test items may be selected. If leaders in any other profession were asked to list their main professional goals, the summary of all the goals suggested would amount to quite an order, too.

Those who will use the goals for various purposes can organize and view them in a number of ways. It would be misleading to select items from among them that could be organized and presented in any single manner. To do so would give an entirely erroneous impression that the educational process is a simple one and that the problem of evaluating and refining our procedures may be solved in a leisurely armchair manner. The fact is, of

[1] Some of the difficulties in rating schools will be more clearly understood from reading *How Good Is Your School?*—a small book by Wilbur A. Yauch, Harper and Bros., New York, 1951. This book shows in simple words some of our changing ideas as to what constitutes a good school.

course, that our outline of goals, though significant in the many ways pointed out in this report, is but a first step in what must be a series of rigorous and difficult technical steps.

A study of the goals indicates that the consultants subscribed to certain basic concepts regarding the objectives of education. These concepts are as follows. There is an ever-widening environment in which the child grows. There are fundamental organic and social needs to be met if the child is to mature and develop properly. Within limits, this growth and development of children follows certain patterns. There is an intrinsic logic in the nature of many of the "subjects" that children study. Let us examine these four concepts briefly.

In the first place, the list of goals clearly reveals an attempt to keep pace with the ever-widening environment in which the child gains his experience.[1] Typical learning in the kindergarten and first grade is centered in the family, the home, the school, and the neighborhood. In the second and third grades, it extends out into the local community and into other similar communities. In the third and fourth grades, food, clothing, and shelter are major topics. Children begin to develop interests in natural resources, in trading, in machines, and in how children live in other places. In the fifth and sixth grades, the child's store of experience has enlarged enough so that he has become interested in many industries and many businesses, in the arts and crafts, in the history and present development of his state and nation. In the sixth, seventh, and eighth grades, his interests may become worldwide. In the goals as they have been listed, these ever-widening areas of learning can be clearly seen.

In the second place, the goals can be regarded in terms of the basic needs of the children. These are sometimes called the "long-range" goals of education and are divided into the organic and social goals. The organic needs of children are for rest, sleep, food, fresh air, warmth, shelter, and activity. The need exists for motor activity, mental activity, and social and emotional activity.

[1] Though many curriculums are based on this plan, a number of readers pointed out that the interests of children do not expand so uniformly or so sharply as such curriculums would seem to suggest.

The basic social needs are sometimes called personality needs and psychological needs. There is the need for acceptance, prestige, and status—the need to belong to a home, a school, a gang. There is the need for love, for security, for recognition, for success, for new experiences, for creativity—for becoming a real person with all that it implies. The teacher will modify his expectations of goal achievement so as to meet the needs of the various individuals in his class. The materials presented in the grid under *action pattern* and *determining conditions* will be of great assistance in pointing out the needs of children and how these needs may be met.

In the third place, the achievement of goals will depend upon the growth and development of each child. This will take into account, of course, his needs and his experiences, but primary emphasis will be placed upon the way his body, particularly his nervous system, grows and matures. He does not learn certain physical skills and he does not feel certain emotions until his body and his nervous system are ready. His interests regarding home and family, for example, are greatly different in his preadolescent and adolescent years. Since children vary greatly in their developmental patterns, much skill is necessary in selecting appropriate goals for them.

Finally, attainable outcomes frequently will be organized in terms of the intrinsic logic of a subject. Generally, children will learn to add, subtract, multiply, and divide simple numbers in that sequence. Progress in learning fractions will follow a similar sequence. History is frequently taught in a sequential arrangement. Some difficult problems face the teacher in these areas. There is a good deal of evidence to indicate that there are wide individual differences among children as to what is best to learn "next," and that initial learning is not necessarily best when constrained to any logical pattern. There is, of course, no question that in the end the child should see the logical structure of the sciences or the chronology of history. The compromise that the teacher must make between logical and psychological factors in the learning process is a difficult one, calling for a high degree of training and intelligence.

What is done in any classroom depends not only on the teacher but also on the health, nutrition, and developmental stage of individual pupils, on the variability and interaction among the pupils, on the kinds of homes they come from, on the impressive differences in their interests, attitudes, and motives, and on the experiences they have previously had both in and out of school. Of equal importance are the preparation, personal characteristics, and experience of the teachers, the adequacy of school and classroom equipment, supplies and instructional materials, the policies of the local educational leadership, the educational background of the parents, and the traditions of the community. These are but a few of the variables that make unique entities of each grade, each class, and each child, and render futile sole reliance upon simple mechanical plans for meeting the needs of individual children (work books, platoons, ability groupings, and so forth). When we say that the individuals in a class learn, we mean that they behave differently. The difference in their behavior stems from some difference in attitude, insight, skill, knowledge, or habit which, when added to what has gone before, contributes new meaning to the situation in which they are behaving.

Goals for each child must be organized in terms of his abilities, aptitudes, and talents. Some children exhibit one talent, some another. A child may be above some group average in reading or music, and below average in arithmetic and science. The reading ability of typical fourth-graders may vary by as much as six years, and of typical sixth-graders by as much as eight years. This will be true despite any effort to level them off by intensive drill, by high selection, by failure, or other means. The teacher must adapt his selection of outcomes to this pattern of individual and trait differences.

The outcomes will vary in accordance with the experiences children have and the problems they face in the regions where they live. A child who lives along the seacoast will learn about water safety, about storms, and about weather in terms of his locale. He will learn his arithmetic, his reading, and his science in terms of the industries of his area—transportation, fishing, manufacturing. Children living in mountainous regions or on the

inland plains will achieve their learning in a different frame of reference.

For some reason we have not become accustomed to expect all children to develop standard abilities in the arts or in the appreciation of the arts. However, until recently we tended to operate our schools with the expectation that all children could achieve the standards set for them in the three R's and in spelling, composition, and grammar. Though we are coming now to see that this is impossible, the tradition lingers on. Only recently have we learned the importance of educational outcomes in personality and social maturation. There is a danger here, too, that we may expect all children to be equally interested in working in groups, in becoming leaders and executives rather than scholars and technicians,[1] in seeking companionship rather than preferring to be alone much of the time, and in being extroverts instead of introverts. These things may be more important for some children than others. We must remember that the "average" personality or the "average" in social maturity is not necessarily the best behavior for all. In many places the outcomes make this clear, particularly in the last three columns of the grid. So far as a pupil's personal emotional development is concerned, there is a wide permissible range of individual variation. Excluding such extremes as the *very* withdrawn child and the *excessively* expansive or aggressive child, there appears to be a wide range of possible modes of adjustment between the extremes that can be thought of as lying within the limits of good adjustment. It is erroneous to think of the various optimum conditions given by the consultants as being the most desirable state for any particular child. It is possible, in imagination, to have a group of children in which each child is equally sociable, outgoing, self-directive, competent, acceptant of others and of self. It can be doubted, however, if this would be particularly desirable from the point of view of the necessities of society as a whole. So long as a given individual can be said to be relatively healthy in emotional life, there seems to be little reason for insisting that the more self-contained child should become more gregarious, or that the outgoing child should be-

[1] These are not mutually exclusive, of course, and there is a middle ground.

come more introspective. In regard to such matters, the concept of the average child needs careful examination.

The outcomes as they are presented vary greatly in their degree of specificity. Some are general and do not indicate "how much" progress or ability may be expected of an average child at a given point in any given school system. Clearly the consultants believe that many outcomes can be stated only in general and in relative terms and that the teacher, or the reader, must make personal judgments concerning the extent of the meaning and desirability of each outcome for *each particular child*. These outcomes need further study to determine some limits of acceptable variance. Other outcomes are stated in the most definite and specific terms. They also need further examination to determine their usefulness.

We need to know more, too, about the best points at which to begin instruction aimed at the various outcomes. It may be that some things are not so difficult for very young children as adults assume them to be. Other outcomes may come much more easily and naturally to the child if deferred until he has more maturity. There is no evidence that the earliest age at which a thing can be learned is necessarily the best time, either from the standpoint of efficiency of learning or of mental health. These points are illustrative of questions that arise from this study and that need further research. Much work has been done on them. Much more remains to be done. New measuring instrumcnts must be devised before much of it can be carried on.

We know a great deal about "averages" as they apply to human beings. We know that an average child is a purely imaginary child. A child who might be at or near the average in one ability or characteristic will be far above or below the average in others. These individual and trait differences are mentioned many times in this report.

A brief reference to Table 1 shows that approximately 6 per cent of the outcomes mentioned by the consultants in both Group I and Group II were rated D3 by the critics. The rating D3 indicates that the critic agreed with the item but thought it should be an outcome on a different level from the one indicated. In most cases, this means that the critic considered the outcome

too difficult at the level listed. Many of the written notes also indicate that the outcomes may be too difficult for average children: "I have found the grade placement of the items to be uniformly high from the standpoint of our course of study." "Many of the group skills such as those involved in carrying on elections should be deferred until later." "Knowledge about sex education and the ability to discuss moral-ethical questions is expected too early."[1]

Education or training does not serve to make human beings more alike. It is unfair to expect a good teacher to achieve uniformity among his pupils in any skill or knowledge. A simple example will clarify this point. Let us assume that ten children who have never juggled golf balls begin to practice two hours a day with them. The first day or the first week there will be little difference among the children. They are more alike in their skill than they will ever be again. At the end of a year, however, the difference between the least skilled and the most skilled will be very great. The difference will depend upon the eyesight of the children, the speed of their muscular reactions, the ability to coordinate muscle and eye, and many other factors. The primary factor probably will be the extent to which they are motivated. The same situation would be true in learning anything. A group of children learning Greek will start at the same low level but every hour they devote to Greek will increase the differences among them.

The only way to avoid these increasing differences in groups would be to set limited goals. This, of course, would be undesirable. For example, if we set as our goal, in juggling, the ability to keep four balls (and no more) going at one time, the children will temporarily differ greatly in their skills, but ultimately almost all of them will master the limited skill that we demand. This would be true in most other kinds of learning. It is perfectly obvious, however, that children with higher juggling ability would waste a tremendous amount of time while they waited for their less-skilled fellows to catch up with them. Modern elementary educa-

[1] See the contribution by Havighurst and More in the supplementary volume. The "high," "medium," and "low" subdivisions in their list represent an interesting attempt to avoid the confusion that results from using an undefined average.

tion has taken this factor into account. It has not used limited goals in the hope that by doing so, grade standards could appear to be met by all. Ultimately, the goals of elementary education must be stated in every possible instance in such a way as to indicate that the *desirable* outcome is continuous growth and learning for all pupils.

Perhaps no illustration of the change between old and new concepts in education is more dramatic than the shift in emphasis regarding ideas about and attitudes toward children. Before the advent of modern psychology, there arose many different concepts of the nature of the child. The strange thing is that many of these ideas, though inconsistent with one another, persist today in reference to the education of children. It is strange, too, that many of them arose from a misunderstanding of the philosophers and scientists upon whose work they were "based."

According to one conception, the child's mind at birth was like an empty receptacle into which knowledge was to be "poured" by parents and other teachers. Education was a passive process as far as the child was concerned. He sat in class while the teacher filled him with knowledge and inspiration. A similar conception was the *tabula rasa* idea. The child's mind was pictured as a clean tablet or blackboard upon which impressions or marks were made by forces outside the learner. The educational implications of this conception were similar to the ideas of the empty receptacle.

Another old conception of the child was that he was evil and brutish by nature and that it was necessary to discipline him and reform him by force in order to curb and control his vicious nature. "Spare the rod and spoil the child" is a hangover from this concept.[1] Closely allied was the notion that the child was the creature of his passions and base emotions. Through severe discipline and the infliction of punishment, it was believed that he

[1] Changes in ideas concerning the discipline of children, presented by decades from 1880 to the present, are discussed by Grace Langdon and Irving W. Stout in *The Discipline of Well-Adjusted Children*, John Day Co., New York, 1952. The emphasis here is on "normal" as opposed to delinquent or "troublesome" children. It stresses the fact that parents, teachers, *and* pupils all have a part to play. Wide individual differences in sensitivity to discipline, etc., are shown. The authors devote 54 pages to showing how the problems of discipline change from age five to age seventeen. Also good, by the same authors and publisher, is *These Well-Adjusted Children*, 1951.

could be lifted out of his animal nature into some sort of intellectuality. It is interesting to note that the emotion of fear was used to rescue him from subservience to his other emotions.

Sometimes the child was thought of as naturally dull rather than evil. It was thought that his mind or his faculties could be sharpened and trained by long arduous effort with difficult subjects. It was assumed that certain subjects had particular merit in disciplining the mind. Latin and Greek were so considered in one era. Others thought that mathematics would do the job. At various times most of the "classical" subjects have been justified on this basis.

For countless generations the child was thought of as being held in the grip of heredity, class, color, blood, and race. The son of a serf *had to be* a serf. It was difficult for a gentleman to avoid being a gentleman. They said, "Blood will tell," and "It takes three generations to make a gentleman." Under the impact of this idea, gentlemen were trained in gentlemen's schools and other people, if taught at all, were taught according to their class.

In a somewhat different tradition, the child was considered "free and good" in nature. He was unspoiled unless he became spoiled in the society of men. This tradition suggested great freedom in the education of children, who were sometimes likened to little plants that would grow and flower in the garden if appropriate natural conditions were provided.

Again, the child was considered the complete creature of his environment. He was an organism that responded to stimuli. His one distinguishing capability was to form habits, to become conditioned. He was held in the inevitable grip of circumstance and there was nothing that he could do about it. The schools could make of him what they wished. They trained him to react habitually; they conditioned him to react automatically. Presumably, the teachers were held in the same rigid pattern. Others believed in a sort of fatalism. All human beings were as they were because it was foreordained. There was little or nothing that could be done to rescue man from his fate.

According to still another conception, the child was the victim of his nasty subconscious self. He was doomed to stand wavering

on the brink of perversion and insanity, hating his parents, desiring his sister, and shuddering when he returned the love of those who cared for him.

Various other ideas have existed concerning children. It was once common to think of the boy as imaginative, capable, spiritual, and superior and the girl as docile, unimaginative, subhuman, and capable only of doing housework and bearing children. In this tradition, boys were educated in school, girls were trained in the home.

These ideas could be classified philosophically and in terms of various psychologies. The fact is, however, that many of them still survive in part. Regardless of how they arose originally, they are held today with little reference to any logical system of thought. Some of them appear completely false to the student of modern child psychology; others have acceptable elements in them. Some are too simple and too all-inclusive to be adequately descriptive of children. In general, if carried over into practice, they are destructive of the many values we prize today, and are injurious to the mental, moral, social, and intellectual development of children.

The "new" child is hard to define, too. He is new in the sense that he is now seen in a different light from that in which his father and his grandfather were regarded when they were children. In the first place, he is thought of as a child, not as a young adult. Each child is considered to be different from all of his fellows. He is seen as a unique and precious person, possessed of certain inalienable rights and privileges, and to be treated with honesty and respect, by virtue of the fact that he is human. By nature he is intelligent and emotional. He has many basic needs and, as he lives, he develops many derived needs. His basic needs are psychosocial and physical. In the interplay of all these factors, his interests and his attitudes develop. He desires to learn. He could not survive without constant care if he did not satisfy this desire. If he could survive without learning, he would remain an infant in his reactions even when full grown physically. As it is, every satisfaction he anticipates and enjoys is the result of learning. He is a member of at least one group from the day he is born

—first, a family group[1] and, then, larger groups. The older he gets, the more he becomes identified with groups. Much of the routine of his life depends on how well he learns and what he learns in relation to those groups.

The "new" child is able to learn, and he does so from experience, from doing something. His learning is exhibited in his behavior, and any new learning represents a change in his behavior. He has a long period of infancy that provides time in which to develop capacities, as a human being develops them, on the high level of language, communication, manipulation, insight, motivation, selection between possible goals, acceptance of ethical moral values, cooperation, and so on. He is generally rugged and able to withstand unfortunate experiences, but he is sensitive physically and emotionally. If he is to attain his greatest potentialities, he needs optimum conditions for his growth and development. It appears sometimes that "one child's food is another's poison." This complicates the job of the home, the school, and the church. The child is born human into a physical world with other human beings and he is played upon by some aspect of his physical-social environment every moment of his life.

The consultants of the Mid-Century Committee on Outcomes in Elementary Education, either tacitly or explicitly, had in mind many of the attributes of the "new" child as they set forth the goals of education. They thought perhaps of a nine-year-old of some 60 to 70 pounds, approximately four feet five inches in height. This child was being viewed simultaneously as a student, a social being, and as a unique personality. Importantly, he was seen as someone close to the end of childhood, one whom it may almost seem improper to characterize any longer as a child, because of showing many very "grown up" attributes. The child was observed making choices and carrying out plans which depend on a rational synthesis of complex influences. He exhibited at times a realistic appraisal of the world around him and of his own place in it.

[1] Some of the new insights into how children develop in the family are given with a minimum of technical language by Sister Jean Patrice, C.S.J., in *Your Family Circle*, Bruce Publishing Co., Milwaukee, 1952. Children want to be good, she says in one place. In another, when describing a certain little girl, the author says that the child is not selfish, she just has not reached the age to be ready for cooperative play.

Many of the consultants made a clear distinction between the sexes at age twelve. They took into account the fact that the girl at that age is usually about an inch taller than the boy, that she has probably entered a prepubertal spurt of growth, and that her physical, social, and possibly her emotional development can be characterized as anywhere from one to two years "ahead" of the boy. Whereas boys are about four feet eleven inches tall, the girls are about five feet. At twelve, boys seem to have retained more of the behavior characteristic of the late childhood years than the girls. Many girls, though by no means a majority of them, have begun to realize an awakening of the forces of womanhood. Boys, by and large, remain highly resistant to girls, while some of the earlier maturing girls already are taking a marked interest in the opposite sex. This is a period of great diversity in size and relative physical maturity within an age group. Some have taken on early adolescent body proportions, others retain a small, rather childish appearance.

In the social area, the twelve-year-old seems to be a confirmed member of the peer group. Children at this age are no longer dependent on parents and adults for direction in many areas of importance. They tend to take values and ideals from peers as *guides* to desirable behavior, but to resist having their lives structured entirely in adult-chosen directions. These maturing personalities have acquired a breadth of interest well beyond childhood; they know about political questions at a national and international level and they are thinking about various religious orientations. Sports, hobbies, creative art interests claim their attention at times, while at others a definite return to the playing and behaving of a much more "infantile" level can be observed. Thus, it is particularly difficult to describe *the* twelve-year-old, or to set objectives for him, simply because of this very wide range of maturity, present to a degree greater than that for either age nine or fifteen.

By age fifteen the majority of the girls have completed the pubertal growth cycle. The boy generally is just emerging from the rapid growth period. In appearance both boys and girls give the impression of approaching young adulthood. They are nearly

adult in size and strength. They can perform many of the tasks of the adult with equivalent speed and coordination. In a sociological sense these people are "becoming-adults." In many cases they have joined in minor ways the general body of the nation's labor force, doing small unskilled jobs. A small percentage of the girls may marry and become mothers of children within the next year or two.

Many adolescents at this age "feel" so adult that they can be heard complaining vigorously when they are denied adult rights and privileges, such as drivers' licenses, the right to buy tobacco and drink intoxicating beverages. In cities with curfew regulations, children in this age-group can be expected to furnish an undue portion of the offenders. But, just as they exhibit this struggle for maturity in these negative ways, they also are showing remarkable ability to accept self-responsibility, to direct group projects, and participate in constructive action oriented toward the community as a whole. They establish relationships with business and professional people in the broader community, serve on city clean-up drives, and so forth.

There are many things we do not know about the child of today. As we and those who follow us in the study of children learn more, we will be faced again and again with making further adjustments to a series of "new" children, just as merchandisers will need to learn to sell new commodities on new markets; as manufacturers will learn to make things out of new alloys, plastics, and other synthetic materials; and as engineers will learn to use new sources of power.[1]

IMPLICATIONS FOR EDUCATIONAL THEORY

The consultants and critics were requested to prepare their lists of goals in terms of *observable human behavior* in order to facilitate measurement and evaluation. Items were to be included

[1] In a small book, *The Home Education of a Boy* (Updegraff Press, Ltd., Scarsdale, N. Y., 1950), William B. Barrett discusses the home education of his son and its results at the age of three, ten, twenty-three, and thirty-three. (These chapters were first written and published separately several years apart.) Then, in a final chapter he discusses, "If I Could Do It Over Again." Here we have an excellent example of a fine parental attitude, critical yet open-minded. His willingness to admit that he could now do better is in the educational spirit of our time.

regardless of whether techniques for their measurement or evaluation were available. The criterion for selection of educational goals was that each outcome be of sufficient importance to the child and to society to be given an acknowledged place in the regular program of the school.

It is obvious that goals so determined will have been strongly influenced by what the consultants believe as to the nature of the learners and of the learning process, by their conception of the structure of the curriculum, and by their conception of the needs of the individual and of the society of which he is a part. Value judgments also will have affected the selection, as will have the consultants' experiences and insights in the fields of psychology, sociology, social psychology, anthropology (including cultural anthropology), medicine, and psychiatry.

The consultants and critics were selected because of the rich variety of knowledge and experience in their individual backgrounds, and because of their prestige as authorities in areas related to the outcomes of elementary education, rather than because of their association with any particular educational or philosophic belief. The only other selective factor involved—and it is probably not a highly critical one among educators—was the willingness to undertake the difficult task of expressing their convictions on the desirable outcomes of elementary education at the midcentury.

To educators, the most astonishing result of an analysis of the contributions by these authorities may well be the wide agreement among them. In a young profession where there are many conflicting viewpoints, it is easy to overlook the broad areas of agreement. Agreement is evident not only in describing the specific subject-matter outcomes that form the basis of education, but also in considering the learning and the growth and development of the child as an individual.

The care and rigor with which the consultants have carried out their assignment is readily apparent from the study of their individual contributions.[1] With varying degrees of detail, and with

[1] As already noted, the individual contributions of the consultants and critics are presented in a supplementary volume. See p. 10.

natural variations in their interpretation of the suggested instructions, they sought to set forth goals as definitely as possible. It is clear that they were not always entirely satisfied with what they were able to do, but the shortcoming is not personal—it is profession-wide. Their efforts show the need for further work not only on the specific elements that make up the generalities upon which practice is based, but also on the generalizations themselves.

The contributions of the consultants were greeted with respect and, in most cases, with enthusiasm by the critics. The critics were the school people on the firing line: teachers, principals, and supervisors, who saw in this approach a real promise that long-needed assistance was in process of being made available.

It is true that Anderson in his summary paper, and Havighurst and More in theirs, point out divergencies in viewpoint and philosophy among the various consultants. Their purpose in so doing is not to "play down" the wide areas of agreement—in fact, they emphasize this agreement—but to give needed emphasis to the areas where differences of opinion are clearly apparent. It should be emphasized, of course, that unanimity of opinion in a static sense is no scientific ideal. Agreement on a given scientific point simply shifts the areas of disagreement in theory to another stage that is generally higher and broader than the first.

Education is not isolated in the schools. This never has been done and never can be done. Education is one of the main activities in the cluster of functions that make up a home. The same is true for churches, institutes, museums, libraries, charities, and (increasingly) in law enforcement agencies, health agencies, and many others. It occurs almost anywhere, for education means to bring about learning. Learning is change in behavior, and there is practically no limit to the variety of the attempts to influence human behavior.

Theories of education, and goals for education, are influenced by what people consider desirable behavior. Behavior in this sense is not necessarily something that involves observable physical activity. Thinking and feeling are types of behavior too, though they may only be observable through the use of special techniques of which psychometric measurement is but one.

It is possible to distinguish rather well-defined theoretical differences in education. Belief in, or adherence to, one of these theories may change an attitude toward, or an interpretation of, a goal or an educational method.

Four Basic Theories

It would be confusing to attempt, in the space of a few pages, a well-rounded analysis of the theoretical problems that plague educators. Some of the issues should be identified, however, in order to illustrate their nature and demonstrate the need to take them into account in considering the goals that have been outlined here.

In a preceding section contrasts were drawn between an older (traditional) approach to education and an early but somewhat more modern reaction to it. This division of viewpoints is useful background for the study of goals as revealed in the general run of classrooms and curriculums. It is, however, too general to demonstrate certain extreme positions and to provide insights into certain educational controversies on the theoretical level. A more useful division is fourfold: (1) laissez faire, (2) essentialist-authoritarian, (3) progressive, (4) reconstructionist. These viewpoints as presented here concern the function or role of the schools, since our subject is more or less limited to a consideration of educational goals.

The *laissez faire* viewpoints have been called anarcho-individualistic. With reference to education, such a viewpoint has been called the expression theory. It is said to depend excessively on incidental learning. It has been described as giving each individual full freedom to provide (or not to provide) for the education of his children as he sees fit without any control (or support, financial or otherwise) from the state. Those who subscribe to laissez faire doctrines justify them on the basis that they believe in freedom. In saying this, they identify freedom with lack of restraint or discipline. Laissez faire education would be determined in all its important respects by the innate nature of the individual. Its objectives or goals would largely spring from the

wish to express, develop, and satisfy individual needs and propensities—from the belief that all that merits our concern has its roots in the inner life.

The *essentialist-authoritarian* viewpoint has been described as holding that the school, as an educational agency, has command of the necessary knowledge and truth with which to provide certainty and security for man in his environment. Thus, the school can be authoritative because it has the essentials at hand, and all that is necessary is to drill and train the child in these essentials. Truth is immutable (not relative to this or that) and is the possession of those who would pass it on to youth. Knowledge is thought of as consisting pretty largely in information. In the classroom, the teacher is the sole source of aims and objectives and makes the decisions because he knows the answers and has authority from some higher authority. Teaching is the expression of the authority of the social group in control of the schools or of some other authority. One of the primary roles of the school is to perpetuate and preserve a form of society. According to a more temperate viewpoint, essentialism-authoritarianism stresses the knowledges, skills, attitudes, abilities, interests, and values that careful research has found to be essential for successful living.

The *progressive* viewpoint is often called the pragmatic, the empirical, the scientific, the democratic, the liberal, the socialized, the instrumental, the humanistic, the experimental, and, sometimes, the materialistic. It emphasizes change and, in the minds of some, is almost synonymous with evolution. It is said to confuse change with progress, uncertainty with the absence of truth. It has been called experience-centered education, as opposed to individual-centered laissez faire, to subject-centered essentialism and to welfare-centered reconstruction.

Some of the names attached to the various forms of progressive education have been adopted by progressives themselves, while others have been hurled at the progressives by their antagonists. While some names may be accurate in describing the ideas that this or that progressive theorist advocates, few are accurate descriptions of progressive education as it appears in practice. Progressive education, according to a more temperate viewpoint,

considers change as natural and desirable, but is primarily concerned with changing education for the better.

Reconstructionism[1] holds that it is the function of the schools to reconstruct society in a new pattern in order to rectify the evils existent in society as we find it. As in all the other viewpoints we have mentioned, there are wide differences among reconstructionists. In general, they believe that man's social skills will lag far behind his technological skills as long as the schools are merely an expression of our current culture. The schools, they urge, must work actively to bring about better methods of group living in which there will be less insecurity, poverty, disease, selfishness, individualism, and privilege. The reconstructionist goes beyond the idea that education enables society to improve itself; he believes that educators can outline the goals of improvement for society and teach children to achieve them.

These four theories have been very briefly noted.[2] Many who subscribe to one or the other (or some combination) of them will be offended at what has been said or left unsaid. Many who would espouse one or the other of these theories would do so with many reservations. Seldom are these theories held in the pure unmodified forms outlined here. Many of the words used need more careful definition. Anyone interested in the problems of educational philosophy will not want to stop with this brief outline. Certainly those who are critical of the direction being taken by American education should do rather extensive reading in all four areas.

At this point the significance of the four viewpoints consists in the light they throw on the goals for elementary education as they have been presented by our consultants. We find, in comparing

[1] This word may have been borrowed from, but should not be confused in the context with, the psychological use of the term in which learning or education is defined as the process of continuous reconstruction of experience.

[2] If one wished to argue about the bases of these various viewpoints, it might be necessary to classify them according to the philosophies of idealism, realism, and experimentalism; and to discuss them in terms of the nature of reality and the nature of knowing, the idea of mind, the idea of change, the various theories of truth and value, the nature of man, of will, of society, and of democracy. Our purpose here is to identify, not to argue. In discussing educational goals as they are set forth in this study, and in suggesting research based on them, it seems beside the point, for example, whether the experimental approach is defined (in the philosophical sense) as dealing with "accidents and contingencies" or with "universals."

the laissez faire and reconstructionist viewpoints, a belief that organized society should exercise no control over education as opposed to a belief that the school should be the dominant force in determining the directions to be taken by society. The extreme laissez faire philosophy and the extreme reconstructionist philosophy are both conspicuous by their absence in the grid and in the individual contributions of consultants and critics.

At no place do we find a hint that the effort to achieve certain educational goals should be abolished and that children be allowed to grow in untrammeled fashion as their inner nature dictates. There is no advocacy that children be educated or not educated to any extent desired by parent or guardian. At the other extreme, we find no outcomes recommending the reconstruction of society according to the pattern or plan of any particular school of political philosophy or economic theory. There is emphasis on healthy personality, on problem-solving ability, on group skill, and on individual knowledge and understanding. There is advocacy of training in using all available knowledge and in seeking new knowledge to solve the problems that face us and the new problems that may arise in the years to come. The absence here of narrow theoretical viewpoints is of tremendous significance to people who try to evaluate our schools critically.

Schools under a narrow laissez faire influence might go "hog wild" over freedom. Some who have advocated this type of education have done so in revolt against authoritarianism. It is difficult to escape the conviction that in this revolt they have gone far beyond any position justified by experimental evidence. Certain types of poor teaching are sometimes identified as laissez faire teaching, when, for example, it may be a revolt by children against an insecure teacher attempting authoritarian domination. In any case, the emphasis upon freedom and individuality in the goals outlined by the consultants is a far cry from any laissez faire theory.

The reconstructionist's viewpoint is evident primarily in the writing of a group of educational philosophers. They are sincere and brilliant men. Many of them are talented writers and formidable debaters. They are engaged in seeking new and creative

solutions to important problems. The attention that they have attracted recently exceeds anything that their numbers would justify. It is just as regrettable that the reconstructionist viewpoint is confused with newer practices in the schools as it is that the laissez faire ideas are so misconstrued.

The essentialist-authoritarian and the progressive viewpoints can also be advocated in a narrow and unreasonable manner. At one extreme, there is the drive to preserve and perpetuate all that is traditional. At the other, there is change for the sake of change.

Those who work in various phases of test construction will find it impossible to isolate themselves from the philosophical battles that rage in educational theory. Their tests will be used to assist in evaluation. The evaluation of outcomes will depend on the values placed upon various outcomes, but even more important, upon the *relative* values that are ascribed to them. This does not imply that specialists in measurement must become protagonists of one or another philosophical viewpoint.

The important thing is that those who devise educational measuring instruments ought to do so with great insight into the expectations and demands of those who will use the tests for various purposes. One of the prime requisites of scientific thinking is the ability to free oneself from the assumptions that he is unconscious of making, from the ideas that he takes for granted without ever pausing to check them thoroughly.

Effects of Research on Theory

Education is changing partly because educators have at hand a great body of new information based upon careful study and research. The science of education has become interdisciplinary. It finds significant information in many sciences that were not formerly thought to be related to the educational process. Some of this new information will be mentioned in order to illustrate its effect on educational theory.

The study of child growth and development, based on biology, anthropology, neurology, pediatrics, and child psychology, has become a science in its own right. It has drawn upon sociology and anthropology. It has provided the educator with formerly

undreamed of knowledge about the growing and developing child. It is unfortunate that much of the intensive study of growth and development has been done with children at the preschool age and with adolescents. Relatively, much less has been done with children of elementary school age.

The psychology of learning has developed to the point where it lays open to question many of the educational procedures that have been followed for the past century. For example, it has demonstrated how much easier it is to remember verbal materials that are understood than to remember those that are not understood. It has shown us that children first learn large undifferentiated ideas or concepts and later fill in the details rather than, as we formerly assumed, learning the details and from them constructing the larger images or concepts. It has shown us the tremendous difficulties involved in teaching such generalizations as the nature of justice, democracy, and friendliness. It has shown us how necessary it is that children be properly motivated if they are to learn and remember. These are illustrations of hundreds of "new" ideas.

Closely related to motivation is the study of emotions and personality. The influence of emotions in thinking was disregarded for a long time; instead, it was assumed that pure thinking could be and was divorced from emotion. It is now becoming apparent that when knowledge and skill are *put to use* the emotions are of necessity involved.

The modern emphasis on personality has a long history. Interest in personality was greatly influenced by the Judeo-Christian emphasis on the unique importance of each individual soul. This emphasis appeared later in the democratic idea of the importance of the individual in society, in the belief in the equality of all men, and in the right of each person to achieve his maximum development. The idea of personality has more recently been refined and expanded by our growing knowledge of many such factors as individual differences, special talents, the effect of the ductless glands, and the social nature of personality development.

These developments are related to, and overlap, the study of mental health. We have a great deal of new knowledge concern-

ing things that disturb children, block their learning, and stimulate undesirable behavior. For example, a boy who had been a model citizen in school became morose, sulky, uncooperative, impudent, and disobedient in a week's time. At the end of a week, the athletic coach seized him by the coat lapels, shook him up, led him to the locker-room and stood over him as he cleaned up his dirty locker. The next day the coach discovered that the boy's father had returned the previous week from eight years in the penitentiary! Equally radical changes in behavior arise from many subtle causes that are disturbing to the child, though much less dramatic to a reader.

Psychosomatic medicine has many implications for modern education. The child who vomits in school may have a communicable disease, but on the other hand the "whole child" may be telling the teacher that he is emotionally disturbed and needs skillful professional help. A child may ail because of difficulties in learning or *vice versa*.

Social psychology has made rapid strides in what it can offer to education. A group of men interested in boxing mentioned that a prominent fighter, who was deaf, showed an unusual tendency to strike low blows. A social psychologist pointed out that the deaf athlete could not hear the "booing" and roars of disapproval from the ringside that other boxers hear. His trainers coached him as best they could, and he cooperated as best he could, but it was impossible for him to sense the social disapproval of the crowd; hence he was more careless than other fighters. This is a routine illustration of the kinds of insights gained by educators from the study of social psychology.

Sociology has contributed to educational understanding in many ways. Interclass studies and intercultural studies have served to clarify some of the learning difficulties experienced by children. The child from the slum districts in some cases has to learn a new language when he goes to school. The very similarities between this new language and the language he has used at home make his task difficult and confusing. He generally feels, as do most children, that the language of his parents is right and appropriate. It is therefore much more difficult to provide

him with proper motivation for learning, without setting him adrift, than it is for a child of educated middle-class parents.

Cultural anthropology is showing us more and more the influence of culture, not only from one generation to another but over a period of many generations. It is no simple matter to change a child's cultural pattern. The change disturbs him, and it sometimes disturbs the parents more than the child, with resulting tensions that inhibit learning and stimulate undesirable behavior.

Advancing knowledge in many other fields also affects education. It is difficult to decide which "facts" to teach children regarding diet, for the facts change too rapidly. It is difficult to train children in good health habits. Our ideas change as new evidence is provided by medical science. At one time, children were taught to sleep by an open window, to brush their teeth vigorously upon going to bed and arising, or to refrain from bathing during menstruation. Today, experts no longer advocate that these things be taught.

All this shows that the educator is faced with no simple job. It illustrates with a very few examples the reasons that the elementary schools are different today from what they were a few short years ago. It dramatizes the need for reliance on an experimental approach to the problems that bother us in elementary education.

Many of the outcomes listed in the grid will assume new meaning if considered in the light of new research information in all these areas. Information now available regarding child growth and development is particularly emphasized in the grid column on determining conditions, though many of the items under action pattern and attitude or interest are also affected by it.

The influence of the contributions of social psychology, sociology, and anthropology are most evident in determining conditions, action pattern, and attitude or interest.

New knowledge of emotion and personality is reflected in the whole broad area of individual social and emotional development; of ethical behavior, standards, and values; and of social relations. It is particularly influential in the column devoted to attitude and interest. New knowledge about diet, hygiene, mental health, and psychosomatic medicine has affected the broad area

of physical development, health, and body care, as well as the area of individual social and emotional development.

New knowledge concerning the psychology of learning underlies much that appears throughout the grid, but particularly in the sections devoted to action pattern, attitude and interest, skill and competence. The outcomes of elementary education here recommended emphasize mastery of the essentials, the three R's, from the standpoint of their use in the modern world. They emphasize as well the competences involved in behavior that is moral, socially acceptable, and effective to the child as an individual, and as part of a group. They emphasize intelligent behavior, mental health in behavior, behavior that is democratic.

It should be clear by now that the philosophy which affects actual practice in the elementary classrooms of America is the philosophy of the teachers and administrators on the firing line.[1] This philosophy is not always systematic and consistent. It is difficult to present it as a unified viewpoint. It has certain characteristics, however, that can be identified. The purpose here is not to attack or to defend these characteristic beliefs. Brief descriptions that may identify them broadly will enable them to be taken into account by professional and nonprofessional people who wish to evaluate the things that take place in the schools.

Most teachers believe that there are essential knowledges and skills that all children should learn, if possible, and that average children can learn. They believe that many of these outcomes can be identified and that they will not change from generation to generation. The teachers would, of course, differ from one another in their selection of some of these items. They would differ even more widely on how much of them the average child can learn, on the optimum ages or stages of development when they should be learned, and on the methods to be used.

[1] At the present time it seems impossible to *identify* any system of metaphysical theory with any particular educational philosophy. In actual practice theories of education arise from experience in educating children. Experience, here, includes the results of research and the use of theory in experiment. *The Forty-first Yearbook* of the National Society for the Study of Education, Part I, "Philosophies of Education," Chapters 1 and 7 sustain this belief.

Teachers believe, too, that there is much new scientific information that throws light on the nature of learning, the need for improved methods, the constructive recognition of individual and trait differences, the importance of motivation, and the nature of relatedness and organization in learning.

They believe in democracy in the schools and in life outside the schools. They believe that the classrooms should be democratic. They constantly impress upon the children the precious nature of democracy. They believe that children learn through experience and activity. They believe that among the most important things that result from proper experience and activity are growth in personality, social skill and competence, and the use of scientific method in thinking. They do not have objective measures or definitive ideas with which to set goals in these new areas and to evaluate success in reaching them. They tend to assess pupil growth in terms of the older, more definitive essentials.

They accept wholeheartedly many of the new insightful definitions of the social nature of the child and of his learning, for these agree with their experience. It is lack of precise definition and evaluation in the classroom situation that causes difficulty.

Many teachers are confused by the changes in theory and practice that appear to them to be advocated in rapid and bewildering sequence. Just when they think they know what an I.Q. means, for example, someone comes along and says it means something different. Then someone else says that this new meaning differs further in that it cannot be applied equally to lower-class children and middle-class children. The teachers are, however, eager to do the best job possible and to use new procedures that are practical and effective.

Teachers are busy people in jobs that require the expenditure of much physical and nervous energy. They might keep up with many of the seemingly solid advances in educational science if they were not further confused by theories that go far beyond the facts, by disputes between experts on the level of theory. Not being trained in the scientific solution of educational problems, they often fail to realize that such differences of opinion are necessary

if all aspects of scientific questions in education are to be identified and explored.

They are not adept in classifying, unifying, and expressing their educational philosophy. They are afraid of assuming labels or of having labels applied to them. They are intensely practical in adjusting what they do to the exigencies of the total "situation" in which they find themselves. This situation may involve a community whose most powerful elements "disapprove" of new or experimental education. It may involve supervision and administration that is not alert to much that the recently educated teacher has learned as a matter of course.

These difficulties may or may not be more difficult than those facing other professions. There are one or two factors, however, that increase their complexity very much.

Recently we have come to expect the teacher to take into account the impact of society on each child. We have not seen the position of the teacher in his own society with equal clarity. Teaching is one of the few professions that are largely tax supported and subject to public control through elected boards. Furthermore, teachers deal with the most precious possession that people have—their children. The teacher's opinions and viewpoints are inevitably affected by those held in the community about him. In the absence of great conviction, he will hesitate to adopt new methods or to experiment with new procedures when he feels that they do not represent the opinion of the most influential of the community's members. When he does move on, in directions that are scientifically sound, by discarding inefficient or harmful techniques and substituting new ones, he does not have at hand the necessary skills or facilities for basic research to justify his actions. For this purpose he needs reliable measuring instruments and other sound evaluative techniques.

So far in this section, we have dealt rather indirectly with values. The source of the values that men hold has been debated through the centuries. It has been held that they come from God; that they come from the social nature of man; that they come from the immutable laws of nature; that they are fixed and immutable; that they change with the times; that they are purely

intellectual; that they are largely emotional. For our purposes, we will beg the question and merely accept the fact that men in general have values. Americans generally will subscribe to the idea that, regardless of its source, their basic value is human welfare, its preservation and its advancement. They will subscribe to the idea that the democratic way of life provides the best means devised by man for contributing to human welfare, by preserving individual freedoms and providing the framework in which the individual can assume his responsibilities. Though they seldom, if ever, express it in words, they would probably subscribe to the idea that one of man's greatest freedoms is the freedom to assume responsibilities and duties.

The laissez faire philosopher would find his values best protected in a world where there was a more or less complete absence of restraint on the individual. His school would provide mainly for the freedom of the children who might attend it. It would allow the broadest possible range of individual choice and behavior. The essentialist wishes to pass on for the benefit of the future what he considers to be the tried and true values that have been developed in the past. His school would provide for much memorizing and drill, and for much work with the classical (cultural) subjects and those noted for their mental discipline. The progressive believes that changing conditions modify man's needs and thus affect the basic requirements of human welfare. His school would place great value on education in problem-solving, working together, organizing information in new ways so as to provide new insights as new problems arise. The reconstructionist believes that values are meaningless unless answers are contained within those values. His school would provide education in building a new social order, which some day would have to be rebuilt again in a continuous process of reconstruction.

These interpretations will not be unanimously accepted. They are oversimplifications. They beg many troublesome questions of meaning and value. Yet, they point to the means by which educators and citizens with differing theoretical points of view may approach and use the recommendations of the Mid-Century Committee.

The Need for Assessment

Those who are familiar with teaching and testing in the schools know that teachers, when subjected to unfriendly criticism or supervision, look, first, to the discipline and order in their classes and, second, to the results of subject achievement tests. There is a modicum of security in demonstrable excellence and teachers hesitate to give up procedures that can be justified on the basis of present methods of evaluation. They feel that capability can best be assessed if the criteria for success are definite and known both to the raters and to the rated. When they complain about the intangibility of some of the goals they are expected to achieve, and show a tendency to revert in practice to an almost exclusive emphasis on tangible,[1] observable outcomes, they are in effect showing their reliance on things that to them are relatively objective and measurable. Supervisors, principals, and administrators feel the same need.

Parents and laymen depend upon objective and tangible evidence of their school's success, too. They regard the existence of intangible outcomes with a skeptical eye. If little Mary grows up to be a sweet child, curious about her environment and eager to learn about it, kind to her friends, thoughtful of her family, happy and generous with her talents, resilient in the face of disappointment or denial, her father and mother may ascribe all credit for it to her heredity and her home. If little Mary is more tumultuous in personality, throwing tantrums now and then, destructive of Aunt Millicent's antiques and Grandpa Adams' meerschaums, the school may or may not be held responsible. But if Mary cannot read and write well pretty early in her school experience, her parents will want to know "what's the matter at school."

A school system that successfully specialized in the measurable essentials might spend a good deal of money without criticism from taxpayers, as long as the taxpayers could see a causal relationship between the expensive educational procedure and the desirable outcome. When money is spent on work toward objectives in which progress cannot be so clearly demonstrated, parents

[1] "Tangible," as used here, means capable of being identified in a clear fashion, both quantitatively and qualitatively.

and taxpayers become restive. They do not like to buy and pay for a pig in a poke. They are uneasy even when the bag is opened and the pig proves to be a juicy little fellow apparently born with an apple in his mouth. When the educational bag is never opened to them, their uneasiness becomes all the greater.

Most of the intangible outcomes, if really achieved, have great value to society. Reliability, the ability to assume responsibility, to carry out assignments, to work pleasantly with others, to remain physically and mentally healthy, to respect the rights of others—these are the kinds of intangibles that would gain the approval of all men, if it could be shown that they result from the types of education that are recommended.

The perilous times in which we live further accentuate our need for definitive instruments. It has been said that every age has been a "crucial" age to its contemporaneous thinkers; that religion, morality, culture, civilization, and prosperity are always at the very brink of disaster. Psychologists point out that fears are both good and bad. The reasonable fear of real danger is necessary to survival. The unnatural fear of fancied or magnified danger is itself a danger. It is necessary to cope with real dangers intelligently. It is necessary to become more familiar with imaginary dangers—learn about them by studying them—in order to overcome them. Many of the fears that beset us today are not to be brushed aside lightly. The fear of war, of communism, of dictatorship, and of economic collapse and depression are but a few. These are real dangers. The need to do something about them is obvious. Sometimes, in irritation brought on by fear, people strike out wildly and with unfortunate results. The availability of adequate assessment techniques will serve to relieve the fears that people may have regarding their schools.

The goals for elementary education, as this study shows them, indicate that two things are needed to enhance public faith in what the schools may be doing. One is for the public to become more familiar with the schools. The other is for the schools to have available better means to assess for themselves, and for the public, the results of the educational process. These are, of course, closely related.

IMPLICATIONS FOR EDUCATIONAL MEASUREMENT

The two words "evaluation" and "measurement" are generally differentiated. Definitions vary but, in general, measurement is thought of as precise quantitative description, while evaluation is described as appraisal in terms of some criterion of excellence. Measurement is often a means for evaluation, but evaluation usually goes beyond measurement in its use of value concepts.

Evaluation Versus Measurement

A school must justify its program by evaluating it in some way. If it may be shown that the three R's are well taught or that the graduates get on well in life or later in some other school, such facts are frequently used in the evaluation of the school. Sometimes schools are evaluated in ways that are open to serious question. There is a widespread belief today among educators that schools cannot be evaluated in terms of measurement by tests. They regard measurement and evaluation as potentially useful only in terms of the effectiveness of education as it pertains to individual children. These people believe that it is the methods and processes and not the schools or the classes that may be evaluated as new techniques are devised and as attainable goals are progressively developed.

The first step in evaluating elementary education is to determine what education is intended to accomplish. We know that elementary schools are concerned with educating children, but how—and for what? Answers to these questions must be known if evaluation is to have any useful consequence.

Broadly conceived, evaluation is an inherent part of the process of expanding the store of human learning. At the same time it is an essential element in the learning of each individual. Groups or individuals may change their behavior without reference to values, but it is difficult to envision their doing so in any healthy situation. Certainly, evaluation must be part of any effort to improve, of any effort to reach a goal, of any effort to measure

gain or loss in terms of quality. Evaluation is the process of assigning value to the results of measurement or to other data.

The scientific method has been described as composed of as few as two steps: (1) collect the facts and (2) generalize from them. In three steps it becomes: (1) collect facts, (2) make an intelligent guess about them, and (3) see if the guess "holds water." No matter how briefly described, the various steps in the process include evaluation.[1]

Measurement as precise quantitative description is, of course, ideal measurement. Measurement in the practical world may be able to work with large tolerance or error, but a constant effort in science is to measure as accurately as possible and to develop instruments with which to do so.

Measurement is used in all sciences. The older sciences have made greater use of measurement than have the newer sciences, but the relatively new social sciences are making increasing use of it. Measurement in the organic and the social sciences is more difficult than in the physical sciences because the variability and complexity and interrelation of the things measured are so much greater.

Measurement is, of course, all about us: calendars, meters, coinage, the time clock, and proportional representation are but a few examples. The concept of measurement in education is familiar to teachers. There are formal and informal tests, oral or written, essay type or objective type, that measure both broad general outcomes and limited specific fields.

The various measuring instruments in education are designed to provide more exact methods for observing behavior and for judging it in terms of the values that are held by the children themselves (the problem of goals and motives), the teacher and administrator (teacher education in method and content, and insight into the broad individual and social implications of education), the parents and the community (the purposes of the schools in our American democracy). This means that measurement in

[1] Exceptionally interesting and pungent as background here are the first three chapters of *Measurement in Today's Schools* by C. C. Ross, 2d ed., Prentice-Hall, Inc., New York, 1947.

education is to be used in at least three important ways: (1) improvement of instruction, broadly conceived,[1] (2) improvement of administration and management, (3) improvement of society's purposes for and control of education.

In recent years there has been much discussion of evaluation in education with little reference either to testing or to measurement. Whole chapters and books on evaluation sometimes contain but few references to measurement. This is not because the writers do not believe in measurement, nor is it because they have lost faith in the measuring instruments now available when used for the purposes for which they are well adapted. It is, rather, that they wish to place emphasis upon other factors than those for which satisfactory measuring instruments are now available.

In 1941 Macomber[2] was able to say that until recently the emphasis in the use of standardized tests had been on measuring growth in the mastery of subject matter and the so-called fundamental skills. This was consistent with the subject-matter curriculum of that time. Recently there has been less emphasis on single aspects of subject-matter mastery and on specific skills and abilities and more upon changes in attitude, in interest, in ideals, in ways of thinking, in social and personal adaptability, and on broad capabilities to perform creditably in new and different situations.[3]

In education, the most precise measuring probably has been done through the use of some of the better standardized achievement tests. The most widely used tests of this nature deal primarily with reading, arithmetic, and language usage. In general, achievement testing has placed its major emphasis on the measurement of the so-called fundamental knowledges and skills. In recent years, however, tests have been increasingly devised to measure other outcomes.

[1] "The improvement of instruction, broadly conceived" includes the concept of learning as an active, motivated process with progressively greater independence as the learner approaches adulthood. We must remember throughout this study that elementary education is but an early time-segment in the whole pattern of common or general education that extends for many years beyond the ninth grade.

[2] Macomber, Freeman Glenn, *Guiding Child Development in the Elementary School*. American Book Co., New York, 1941, p. 265.

[3] Wrightstone, J. Wayne, "Evaluation," *Encyclopedia of Educational Research*, edited by Walter Scott Monroe. Rev. ed., Macmillan Co., New York, 1950, p. 403.

Testing and measuring are always in danger of becoming desultory if not undertaken in response to a demand or a need for a particular kind of test. Many tests are now being provided on this tailormade basis. Someone who wishes to measure for a particular purpose describes his needs and has a test made to meet them. Over a period of time, satisfactory instruments can be devised and improved. When tests measure for specific purposes, such as how well certain objectives are being attained, they become an integral part of the evaluation process.

A great variety of techniques, some highly subjective in their nature, are used in the attempt to evaluate in education. Some are designed to measure learning outcomes, some to appraise the personal characteristics or potentialities of the individual, some to assess his family or community background. A list of all the names used for them would be very long. There is much overlapping among them. Included are the following:

Intelligence tests
Achievement tests
Diagnostic tests
Interest inventories
Socioeconomic ratings
Adjustment indices
Rating scales
Prognostic tests
Case histories
Activity records
Health and medical histories
Personality inventories
Neighborhood studies
Studies of peer groups
Anecdotal records
Social agency records
Aptitude tests
Projective techniques
Free-play observations
Sociograms
Readiness tests
Interviews
Dexterity tests
Psychodrama
Thematic Apperception Test
Sociodrama
Recordings and films
Essays
Letters
Diaries
Parent conferences
Follow-up studies
Cumulative records
Autobiographies

The Task of Measurement

We have mentioned the need at the midcentury for improved measuring instruments and better evaluation. If the outcomes outlined by the consultants and critics are to be adequately

assessed, measurement and evaluation must concern themselves with the whole life of the child—emotional, intellectual, mental, physical, social, ethical, and esthetic—in the classroom, on the playground, in the home, and in the community. They must take into account the needs of society. Measuring instruments must be provided for use in a wide variety of situations. They must be useful for pupils, for teachers, for parents, and for citizens in general.

Evaluation must take into account the objectives of education; otherwise there is nothing to evaluate. Objectives are ends that are sought because they have value. Values spring from ways of thinking and feeling about things—from philosophy. There are persons who say that the measurer and the evaluator must be neutral if the results are not to be affected by subjective factors. There are others who insist that the evaluator cannot evaluate properly and remain neutral. This is a question that may be misunderstood. We hope when we employ a physician that he wants us to live. He is not neutral in that sense. We hope that in the diagnosis (evaluation) of our physical needs he is as objective and scientific as possible, not trying to prove, for example, that some disease is sweeping the community. In education, our measuring instruments should be neutral, but those who use them should be devoted to the promotion of certain common values. To be neutral in the best sense, a measuring instrument must be free of internal bias, its uses and limitations must be clearly set forth, its inherent usefulness constantly open to checking and calibration and reassessment.

In order to ensure the kind of neutrality that we desire in these instruments, it is necessary to be familiar with the controversial issues in education. In the first place, this familiarity is some assurance that bias will not result from naïveté. Furthermore, it allows the instrument to be used with its purposes and limitations in mind.

Areas of disagreement may have a philosophical or psychological basis and be highly surcharged emotionally. They may, on the other hand, be no more than differences in hypothesis or theory in relatively unemotional areas of thinking. Illustrative of

areas of philosophical and psychological disagreement with which experts in measurement should be familiar are the following:

Learning as skill or memory versus learning as insight and power
A prescribed curriculum versus an experimental curriculum
A standardized curriculum versus an individualized curriculum
A specific-subject curriculum versus a general education curriculum
A logically organized curriculum versus a psychologically organized curriculum
An age-grade curriculum versus a developmental task curriculum
The child as a child versus the child as a young adult
The child as an individual versus the child in society
Competition versus cooperation
Intrinsic motivation versus extrinsic motivation
The acceptance of learning goals by the child versus imposed goals
The curriculum as "authority" versus the curriculum as creative activity
Transmission of the culture versus education for a better society
Education for a static world versus education for a changing world
Testing for long-range goals versus testing for short-range goals
Present values versus deferred values
Primary values versus secondary values
Proximate values versus ultimate values
Rate of growth versus stage in growth
Heterogeneous groups versus homogeneous groups
Testing the child versus testing the class
Testing for instructional purposes versus testing for administrative purposes
Observable outcomes versus mental, emotional (even neural and residual) outcomes
Systematic versus opportunistic education
Interest versus discipline
Freedom versus authority
Child-centered curriculum versus adult-centered curriculum
Recitation method versus project method
Integration of subject matter versus compartmentalization of subject matter

In listing these areas of disagreement, there is no implication that the listed alternatives either do or do not represent choices that must be made by philosophers, educators, citizens, or experts in measurement and evaluation. In many cases, as was pointed out earlier in relation to other differences in educational theory, the disagreements and conflicts result from the lack of a

clear understanding of the factors involved in the apparent division. The fact remains, however, that the conflicting viewpoints do represent areas of spirited and sometimes acrimonious debate. The fact also remains that one cannot resolve the difficulties that arise in such debates if he is not familiar with both positions. Those who construct tests and interpret them must be keenly aware of divergent viewpoints in these areas, so that the instruments they devise and use will not be biased or misinterpreted. It is much easier to avoid stepping on the cat's tail if you know the cat is there.

There are many determining conditions that affect not only the setting up of objectives and the measurement of what has been done to achieve them, but also the actual progress of pupils toward them. That some of these conditions may be controllable and some may not was discussed in earlier sections. Factors of this nature that must be of concern in the future development of evaluative instruments include the following:

Effect of progression toward physical maturity on desirable learning
Effect of progression toward emotional maturity on desirable learning
Effect of progression toward intellectual maturity on desirable learning
Effect of progression toward social maturity on desirable learning
Dependence of learning on motivation—on both conscious and unconscious motives
Effect of the differences between the sexes in various types of learning
Effect of urbanizing and industrializing on home, family, and child
Growing diversity and complexity of the residual functions[1] being assigned to the schools
Effect of social class on learning
Effect of general health on learning
Effect of specific physical differences (visual or auditory acuity, for example) on learning
Effect of social acceptance and security on learning
Effect of viscerogenic, psychogenic, and egoistic needs on setting learning goals
Effect of learning in increasing individual differences
Effect of failure on future learning
Effect of new cultural media on the child—mass spectator sports, comic books, radio, television, movies, advertising, automobiles

[1] In this context, a residual function is one that becomes a responsibility of the schools because it needs to be taken care of and no other agency assumes responsibility for it.

There remain many fundamental problems the possible solutions of which suggest that no matter how effectively we may devise new instruments today, we will need to discard them as we learn more. We still do not know what actually takes place in the nervous system when we think. We do not know what the real differences are between verbal and nonverbal thinking. We do not know the basis of our esthetic feelings or artistic and musical talents. We cannot explain free will without recourse to logic, philosophy, or religion. Many of the factors in mental health escape us. Happiness and well-being are extremely amorphous when discussed in a psychological setting. The possible two-way effect of various social and emotional factors in relation to learning the knowledges and skills is in need of much clarification. These are illustrative of the great areas of our ignorance, but are not meant to belittle the significant progress we have made and are making. We are far from utilizing what we know, but we must be aware that further knowledge will continually modify both our theory and our practices.

Measurement must not be developed so that it tends to crystallize or predetermine the content of education or limit the dynamics of learning. However, it must be emphasized that evaluation plays an important role in a circular process. It springs from values and objectives, but it can and does influence them as well.

Next Steps in Measurement

The outcomes in Part Two, as well as their sources in the individual recommendations of the consultants and the critics, call for instruments of a nature suggested by the grid continuum in Chart 2.[1] It is significant that the outcomes listed by the consultants denote the same objectives and the same subject divisions at all three levels: primary, intermediate, and upper. Age and grade standards are no longer meaningful concepts.[2] A child's learning

[1] See p. 38.

[2] This is true for many reasons. There is no wide agreement on specific subject matter for each grade. There has been a great shift in what is considered proper learning for given ages and grades in some subjects, and it appears that even greater changes are in the offing. On other than subject matter and skill goals, there is practically no crystallization of opinion as to standards and even less evidence upon which to base opinions.

and development can be assessed only in relation to the child himself. His achievement in one area or in the exercise of one trait is little more than suggestive of what his behavior may be in other traits. The expectation of what may be achieved with any child cannot be an average or a median. Rather, it grows out of what the child has been able to achieve in his past performances. The standard we set for him, which may be higher than what we achieve or expect to achieve with him, is that he fulfill his maximum capacity. Thus, we consider what he does as compared to what he might do. What he does and what his potentiality is, are not static or constant. Nor is measured rate of growth as closely related as we might desire to ultimate status in any one trait. Learning as behavioral change is not made up of numerous definite and complete learning steps. Any particular measured sample is a point on a continuum. Its mastery indicates something relative at a given time.

Increasingly, the curriculum will be recognized as fitting children of the same age who differ widely from one another, rather than children of all ages who cluster about some behavioral norm. This is not a matter of choice. It is an inevitable obligation that we face.

Though Part Two contains statements of many goals that are so specific that their achievement can be measured with great precision, others require social and personal evaluation of the broadest kind. With the latter, the needed measures will give us far less than what we require if they are confined to specific items of achievement. Present tests probably meet, or give promise of meeting, many of the needs for the measurement of specific outcomes, but their normative procedures would require revision before they could fit in with broader types of testing. The outcomes in Part Two suggest that the day is passing in elementary education when tests of mere factual memory or mechanical skill will be widely used. In fact, it may have already passed. It is not always easy to tell whether a test item measures factual memory or something else. If a child has memorized a statement made by a famous statesman, its recall in a test will be factual memory. If he has not learned the statement but can figure out from what

he knows that a certain statesman probably said it, that may be evidence of an ability to interpret history. This illustrates that we cannot always tell what tests measure unless we know something about the teaching and the learning experiences to which those tested were exposed.

The needed instruments will be broadly descriptive in character. Yet, there must be some attempt based on research to make the descriptions tangible. The approach may need to be partly through extensive, careful, direct observation of child behavior in formal and informal learning situations. There is a tendency today to feel that some of the needed evaluation of this kind cannot be done by the use of "paper and pencil" measuring instruments. The list of evaluative techniques given earlier suggests how informal much of this evaluation now is. It seems beyond question that instruments limited largely to memory, skill, insight, and intelligence will not do the whole job. The hope persists that new approaches, the result of highly imaginative and creative hypotheses, may open up new avenues for measurement that is, in fact, behavioral description.

Reference to the grid outline in Part Two, particularly to action pattern, to attitude and interest, and to determining conditions, will suggest many broad unifying concepts into which the more specific items under knowledge and understanding, and skill and competence may be placed. These concepts may be found in more detail in the original contributions of the consultants. They are the outgrowth of much research that may yield clues to new approaches in evaluation and measurement.

The newer instruments may be standardized in ways not presently used, so that interpretation may be based on more complete knowledge of the characteristics of the standardization population. It may very well be that the idea of quotients will be supplemented, if not replaced by a concept more in line with what we know about child development. The new instruments should tell the teacher a great deal about the child: his interests, attitudes, methods of approach to problems, his needs, his skill, his memory, his blind spots, his limitations, his sources of pride, and more. The instruments may be susceptible to numerous

interpretations in terms of further observations that the teacher may make of the child, or that he may have readily available in his records. Certainly, they should bear a close relationship to the kinds of records the teacher should have of the child's pattern of physical development. The instruments should help the pupil to understand himself, participate in his own guidance, achieve in terms of his maximum capacity. All of this should contribute to a school situation in which proper experience, stimulation, and motivation might be provided to each child, so that the bright students need not be bored or the dull ones discouraged.

Throughout this discussion about new instruments, no reference has been made to such instruments as diagnostic tests and readiness tests. The newer instruments, if our ideal can be reached, will automatically fulfill some of the needs now being met by such tests and will suggest their supplemental use in other cases.

In a sense, elementary education is made up of the tools we use to achieve goals or objectives. We know enough to feel certain that our outcomes fall far short of where they could be if we had a better hold of the process, if we knew what elements in the process are effective in bringing success to our goals. Through progressively better measurement, used with discrimination in relation to objectives *and* methods, there is reason to believe we could sharpen up our tools exceedingly. There is reason to believe that elementary education could contribute much more effectively to human welfare. The analysis of our goals showed that many of them were stated in terms of one or the other of two *theoretical* approaches to education. Part of this was due to differences in the interpretation of the meaning of current research. Part of it was due to the absence of conclusive research on the relationship of method to outcomes. How democratic will a child become in an autocratic classroom? How much self-reliance can you teach a child by making or trying to make every decision for him, until he runs away from you? These are suggestive questions. A whole new block of research is necessary to explore them.

The outcomes as codified and criticized in this report show some lag behind current theory based upon recent research and

experimental practice in laboratory schools and pilot schools. The newer instruments should serve to relate outcomes to methods. To do this, those who construct the tests must understand the instructional methods that are so frequently advanced as a *sine qua non* in achieving certain objectives. Thus, the expert in measurement must base his tests on expertness in instructional method. He must be very sure that he understands what is meant by the statement that some part, at least, of what the child learns *is* the method—the process—the behavior involved in learning. He must be very sure that he understands the increasing difficulties and dangers in separating content from method—in separating the results of the educational process from the process itself. This understanding should help him increase the validity of the tests and make them a contributive force in bringing about better teaching, without resort to those aspects of teacher rating that are sometimes so destructive of professional morale.

The morale of teachers is threatened when they are asked to teach for the attainment of certain goals if techniques for measuring the achievement of those goals are not available. This is particularly true when teachers are told that certain goals are no longer of primary importance, yet conventional testing procedures are continued in use to check on how well these older goals are achieved. Thus, we have a situation in which the teacher cannot check objectively on his success in doing the main job assigned to him, but can check (and is checked by others) on other less essential parts of his assignment. Since he may not understand at all clearly that there are not satisfactory measures available to check the new goals, and since he may not sense the difficulties in devising the needed new measures, his confusion may increase. We should realize the effect on children, too, when they are exposed to a broad curriculum, but are seemingly evaluated on a narrow basis. The difficulties compound themselves!

With particular reference to the goals listed in this study, further research is necessary to determine the accuracy of authoritative opinion as to what is "average" behavior at various levels. Since average behavior is a measure of the central tendency of the behavior of groups, further research will be needed to assess the

extent of individual and trait differences in their several aspects. Much information along these lines is available for the subject-matter learnings and skills and for intelligence scores. There is not so much in the broad areas of personal and social development.

It is necessary to remember that there are grave scientific dangers in relying on group judgment. One of the most disturbing elements in the validity of various tests is the ultimate reduction of validity to some sort of concurrence with expert opinion. The history of science shows that this reliance has been a frequent obstacle to progress. This danger is particularly acute in the developmental stages of a project. Authoritative opinion is valuable for what it is: the best judgment of people who are widely informed on research and theory in their specialities. It is an *excellent point of departure.*

The outline of the goals of elementary education (the grid in Part One), as developed by the Survey Committee, has proved to be a fortunate arrangement by which to emphasize various points of departure for the further study of the measurement and evaluation of elementary education. Sixteen possible areas of inquiry are suggested below. Others will occur as the goals in Part Two are given critical consideration.

1. Developmental changes that take place in children
2. Types of behavior that may fittingly be assessed in a study of outcomes
3. Absence of a need for narrow subject-matter divisions in a behavioral description of outcomes
4. Consideration of action patterns, such as habitual behaviors, and the command of problem-solving techniques
5. Importance of taking into account various factors in the learning situation over which the pupil or even the teacher may have little control
6. Broad awareness of the total environment as it affects the child
7. Importance of the child as an individual (hence the importance of individual differences)
8. Basic needs of pupils and the attitudes, interests, and motivation that grow out of them
9. Importance of the child as a moral and ethical human being
10. Importance of the individual and of the group in the interactive, integrative processes of learning and living

11. The child as a citizen in a democratic society
12. Relationship of subject-matter learnings to other learnings without primary emphasis on either
13. Importance of better tools for measuring and evaluating outcomes
14. The relationship of evaluation and measurement to the scientific effort to improve and guide elementary education
15. The relationship of method and outcome
16. The relationship of the teacher's preparation and personality to outcomes

The implications of this study of outcomes for measurement and evaluation have been presented in broad terms. Two other alternatives were possible. One was to review and classify the kinds of measurement and evaluation now being used and to point out how they might be applied in the present instance. In many cases, no doubt, that can be done. It needs no further enlargement in this instance. The other alternative was to attempt formulation of a new theory of measurement. If done, it would probably prove to be no more than conjecture piled upon theory. Actually, few improvements in science are the result of a sudden broad and epochal insight. Many potential young scientists become discouraged because of that misconception. Progress comes through the desire to solve a problem followed by methodical, persistent effort.

Measures of the types suggested by this study will be difficult to construct. The basic research necessary while they are being tentatively constructed will prove extensive. The cost in time and effort may delay results far too long. At present, much of it can be done here and there only as relatively limited funds become available. Research scientists in universities and colleges all over the country do their share, but their efforts are not always part of any broad and well-conceived pattern of attack. The cost may prove too high to be amortized from the prospective sale of the contemplated measuring instruments. Devoted scientists, however, have seldom been discouraged by such prospects (no more than they seem properly elated, sometimes, when prospects are favorable).

A word of warning regarding the new measuring instruments that are to be developed may be appropriate at this point. It has long been evident to the makers of tests and to those who use tests for their intended purposes that tests are not a panacea for all educational ills, that tests must be used according to their directions, and the results interpreted with more caution than enthusiasts sometimes exhibit. Any test must be used carefully and cautiously. This will be *even more important*, however, as new instruments to meet new demands are developed. The new instruments will almost inevitably contain many flaws that can only be overcome as they reveal themselves in use. It may turn out that many of the new instruments will not measure what their makers think they measure. And many of the dimensions the makers think they are measuring may turn out not to be single dimensions at all but broad areas or manifold surfaces. Most of these failures will be honest ones, but *some* of the new measures may be quickly and carelessly marketed to meet the demand. These considerations give point to the warning that as new measures are developed for new purposes, they must be used and interpreted with great care. In their early stages, their experimental nature must be held firmly in mind.

CONCLUSION

The stimulation and direction of further research was an important motive for the preparation of this report. Perhaps the most fundamental types of relevant studies center on the problem of further validation of the report itself—particularly the heart of it, the statements of goals for elementary education.[1] This is essentially the problem of validating the purposes and possibilities of elementary and junior high-school education. This report rests the case for its validity upon expert opinion. True, the experts themselves have done research and are thoroughly familiar with the research of others, but it is doubtful that they would

[1] The writer is deeply indebted to G. Lester Anderson for much of the material in this concluding section. It is taken from his paper entitled, "Recommendations of the Mid-Century Committee on Outcomes in Elementary Education—Their Implications for Research in Educational Psychology," read at a Symposium of the American Psychological Association in September, 1952.

claim that their individual statements, or this organization of all of them into a single statement, are definitive. The educational psychologist should feel that his discipline and his research procedures have considerable relevancy in this further validation.

This validation might center around two types of investigation. Objectives have validity,[1] first, if they are in harmony with the broader purposes, goals, or directions of the society which ultimately gives its charter to the schools. Perhaps the educational psychologist, in applying the scientific method, has tried to avoid making value judgments. Perhaps he need not make such judgments now, but he must study and understand the value judgments held in our society. The educational psychologist can and should bring his discipline and his research procedures to bear on validating the learning to be achieved in school in terms of the values held by society.

Second, the goals of elementary education must have reality in terms of the ability of the elementary school child to attain them. Here the educational psychologist has been preeminent. He already has tested many hypotheses about the grade placement of the content of such areas as reading and arithmetic. This type of research needs to be much extended. It must validate the placement of "mental processes" as well as the "facts" of arithmetic or the words to be spelled, important as the latter are.

Ultimate learnings in all curriculum areas transcend "the knowledge of" or "knowledge about" curriculum areas—be they the "facts" of science or the social world or the "facts" of arithmetic or language use. We are now concerned, as well, with the mental and emotional processes that are represented in behavior. These ultimate effects of the experiences of children are relevant to, but at best imperfectly categorized by, our present broad curriculum areas. The questions now become: What insights, what understandings, what values, what mental organizations, what richness of feelings, and with all of these to what depth are children capable of attaining various goals, within the dimensions

[1] In this context "validity" refers to the degree to which statements of goals, and all that is implied in them, represent true estimates of what we *should* try to do and what we *may succeed* in doing in the education of all children.

of their capacity, age, and directed experiences? The capacities of children to generalize, to infer, to do inductive and deductive thinking, to apply principles, to do true problem-solving thinking within the dimensions of their individual biological inheritances, the time spans of their individual lives, and the nurture of their individual environments as they encounter what we call science, social studies, and the other broad curriculum areas, still need to be determined. There is need for renewed interest in the old problem of mental organization and for research concerning the development of the higher mental processes.

The latter part of this study has called attention to the kinds of problems on which the educational psychologist might do research. These problems, however, are of considerable importance as well for the practical affairs of the school—school organization and methodology as well as goals. The psychologically oriented person, intent on the practical problems of day-by-day education, will need to understand what the educational psychologist does in his theoretical, laboratory-centered experiments. Furthermore, as quickly as it is possible to do so, we must interpret to the citizenry the meaning of research in terms of the practices in the schools. In this way, decisions regarding schools may be made with the greatest possible intelligent understanding of educational problems.

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