

POPULAR GOVERNMENT

APRIL, 1969

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In this issue . . .

The Way the World Is Stacked

What the Research Triangle Means to North Carolina

A New Approach to Long-Range Planning in Education

Which Bidder Wins in Local Government Bond Sales?



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Our cover picture shows Mrs. Davetta Steed, who retires November 1 after more than three decades as Executive Director of the North Carolina League of Municipalities. (See the article on page 11).

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YOU BETTER BE BORN RIGHT

By Watts Hill, Jr.

[The author is about to step down as chairman of the Board of Higher Education of the State of North Carolina. A former member of the North Carolina General Assembly, he is a distinguished member of a distinguished family. This article is drawn from his remarks to the annual convention of the International Association of Torch Clubs this month in Durham. He sees it as reflecting his views not primarily as a public official but rather as a concerned citizen. His private responsibilities include the chairmanship of the board of the Home Security Life Insurance Company.]

No one would deny that both this region and this nation are changing. But one might well ask whether they are changing rapidly enough to meet the demands of our time—or even whether they are changing in the right direction. Let us look at some of the evidence.

The Kerner Commission was presidentially appointed to study the cause of race riots. This Commission described America as racist, polarized into two societies. Less than a month ago a follow-up report by the Urban Coalition, an independent organization of American businessmen headed by no less than John Gardner, concluded in part, "The nation, in its neglect, may be sowing the seeds of unprecedented future disorders . . . We are a year closer to being two societies, black and white, and increasingly separate and scarcely less unequal."

One need not confine his inquiries to race riots to arrive at the conclusion that equality of opportunity—the American dream—is just that, still a dream. It matters not which segment of our society one studies—housing, job opportunities, health, or the many others. In each case we find that the reality is that we are not closing the gap of equality of oppor-

tunity but indeed the gap is growing greater. We make much of the occasional story of success, but for the vast majority of American minorities, be they black, Puerto Rican, or Mexican-American—or the American Indian—they are *relatively* in a poorer position today than at any time since World War II. And the same is true for certain segments of the white population who may actually outnumber the racial minorities. This is true despite the passage of the Civil Rights Act, despite national efforts such as the Antipoverty Program and the Urban Coalition, and despite educational programs such as Head Start, Upward Bound, the Job Corps, and the rest.

In *absolute* terms some progress has been made. But in *relative* terms minorities have not shared the increased affluence to the same extent as have the white majority. This is a crucial fact, for man judges his well-being not by those less well off than he but by those better off. Before we pat ourselves on the back because of our few successes, we need to examine "the changing South in a changing nation" and ask ourselves whether what remains to be done is not much greater than what we have accomplished. The Kerner Commission findings and those of the Urban Coalition better represent where we are in America today.

It is this paradox—that, in the midst of increasing affluence, minority groups in America are relatively less well off today than two decades ago—that led to the selection of the title for these remarks, "You Better Be Born Right." No matter where we turn we find that one's opportunities are more a function of "being born right" than of having the inherent ability and desire to succeed.

Nowhere is this more apparent than in education, at all levels. My remarks today will be directed primarily toward lack of equal opportunity in higher

education because this is perhaps the area which is least well documented and, therefore, least understood. But we would be wrong to conclude that what we find in higher education is any more extreme than what one discovers in such areas as housing and job opportunities. While most illustrations will be drawn from the South (but not all), let there be no doubt that in other parts of the country—the big-city ghettos and the Mexican border, for example—even more extreme illustrations could be found. We are talking about a national problem, not a regional one.

Let us start with the vicious circle in which a member of the minority finds himself at birth. He typically enters school from a socially and culturally disadvantaged background, perhaps even unable to speak the language. And here I refer not just to our Spanish-speaking Americans but to many of our black Americans. He is typically taught by teachers who themselves are victims of the same disadvantaged backgrounds. As a student, he is forced into curricula designed to meet the needs of middle-class whites, curricula which may have little relevancy to his needs. It is a well-documented fact that in our essentially segregated schools, both North and South, he falls further behind his white counterpart every year.¹

The majority of students who are minority group members drop out before ever completing high school, unlike those attending white schools. Of those who graduate, most have neither the preparation nor the motivation to go on to post-high school education. Since birth, the prospect of college has been so far beyond the realm of financial and psychological possibility that too many with proven ability and motivation never even apply for college admission. Among the majority who drop out before high school graduation there are many with inherent but unrevealed ability who, because of the neglect of our society, never had a real opportunity to discover their innate ability or gain the motivation that comes from self-confidence.

What is the result? In the South we find that "about 15% . . . of the region's college age Negro population is in college . . . in sharp contrast to the nearly 44% enrollment of college age whites."² Looked at from a national viewpoint, roughly "half of the college age whites are in college but only 4.5% of the black and Puerto Ricans."³

Some of the explanation of this gap in equality of opportunity should be obvious. Such is the toll of several hundred years of discrimination. This discrimination continues today. We are just more subtle. It is buried in the system.

Let us examine the economic barriers to higher education as an example of this subtle even if unintended discrimination. Here it is difficult to obtain figures on a racial basis, but one can get a clear picture from figures based on income groupings. Only North Carolina figures are used because comparable figures are apparently unavailable on a national basis.

In North Carolina half of the families have incomes under \$4,000 while 7 per cent of our families have incomes over \$10,000. When we look into the financial history of parents of students attending colleges in this state, we find that the poorest half of our population provides less than 10 per cent of our college enrollment while the richest 7 per cent provides a grossly disproportionate one-third. It should not be necessary to point out that the overwhelming majority of our black families have incomes under \$4,000 and that the overwhelming majority of our families with incomes above \$10,000 are white.

For most members of a minority, the scarcity of federal scholarship and loan programs and the even more limited financial aid available in all but a few states simply precludes consideration of college.

When we add the psychological barriers, such as college being for whites, not blacks—psychological barriers which result from several hundred years of discrimination—it really is remarkable that as many as 15 per cent of college-age blacks actually attend college.

To give you some idea of the magnitude of the problem of lack of financial aid, a recent study by the North Carolina Board of Higher Education indicates that we have unmet financial aid needs for students now in college totaling \$22,000,000. This is approximately \$180 per student, but of course, such an average is meaningless. You may ask how these students stay in college if they are that short of financial aid. The answer is simple. A staggering number do not stay but are forced to drop out. In some colleges 50 per cent of freshmen never make it to the sophomore years, and financial problems are a major cause of this attrition. Many of those who remain complete their education saddled with exorbitant debt in relation to their ability to repay. Try to raise a family and repay up to \$5,000 in debts on a starting teacher's salary of less than \$6,000. But you say financial aid is available and you point to those who in the past have "worked their way through college." That is true—for the past—but today meeting the increasing cost of college is difficult for even the well-to-do. It becomes prohibitive to most families where the parent himself is not a college graduate and earning accordingly. And we all know that college is becoming more expensive every day. Furthermore, there are not enough on-campus or summer job opportunities today to meet the needs of the increased number of students who must earn part of their way through college.

1. James S. Coleman, "Equal School or Equal Students?" *Public Interest*, No. 4 (Summer, 1966), p. 125.

2. SREB Report, *The Negro and Higher Education in the South*, 1967, p. 2.

3. Franklin H. Williams, *The Urban Crisis and the University*, Lecture at Rochester University, March 6, 1969, p. 19.

The best example of how subtle but devastating discrimination is built into the system is perhaps most clearly revealed in the growing awareness that financial aid may, in fact, often be going to those who need it least. Listen to an excerpt from a 1965 California study. When discussing who received financial aid at that time, it said "Minority groups are markedly underrepresented and there is considerable underrepresentation from lower and middle income groups."⁴ Stripped of its educational trappings, this quote says that financial aid is being given to those with high incomes at the expense of middle- and low-income students, and the hardest hit are those who need it most, the minorities. Most states have yet to make such studies of their own aid programs, partially because few have a meaningful program at all and partially because they assume all is well.

It is to California's credit that its study brought many improvements. Federal aid has long been based primarily on need.

And which institutions have the endowments, the scholarship funds? Why, of course, the most prestigious. And the most prestigious have the highest entrance requirements. And those best able to meet the high entrance requirements are rarely those from low-income families or minorities. So the poor minority must attend those institutions with little or no scholarship aid available save federal assistance. Is it any wonder that those with the greatest need are least likely to be receiving anywhere near the aid they need? This is how the present system works—in fact. This is how we effectively deny equal opportunity even after the legal barriers are removed. Our failure here is the failure of neglect beginning with neglecting to even get the facts.

But the tale still is not told. Let us look at equality of opportunity in higher education from another viewpoint. It is true that landmark court decisions such as *Brown vs. Board of Education* plus the Civil Rights Act of 1964 have eliminated the legal barriers to higher education for minorities. Overt discrimination is ended. But, as has been pointed out, covert discrimination remains to be expressed in a hundred ways. Our white colleges tend to recruit in white high schools or recruit just at the senior class level, which is too late for the vast majority of blacks. Typically what little recruiting occurs is done by whites who cannot communicate effectively with blacks. And, once on the campus, for the black there typically is an absence of effective remedial or compensatory help, to say nothing of the absence of relevant curricula—a lack shared by black and white alike but more extreme for the black student.

Let me give you an illustration of how subtle the covert acts of discrimination can be. In speaking of

the small number of Negroes at Cornell in 1963–25 out of 11,000—it's then newly installed president, James A. Perkins, is quoted as saying, "I suspected it was not an accident . . . there was no quota, but neither was there an affirmative interest in increasing the number."⁵

President Perkins, one of the truly great educators of our time, set about building that "affirmative interest." It still is lacking on most of our white campuses today.

Once he had built "an affirmative interest," there remained two significant barriers, money for scholarships and entrance requirements. The scholarship barrier was broken by a large foundation grant. The entrance examination barrier remained. Cornell lowered its entrance requirements to the point where the average admissions test score for entering Negroes today requires them to be in the top 20 per cent of all students entering college as compared with the top 10 per cent for whites. This may sound good, but the average score required for blacks is still higher than that required for entrance to all save the most selective colleges in the country. In fact, it is safe to say that Negroes being accepted at Cornell are in the top 5 per cent of Negroes entering college. In one sense Cornell is more selective with its Negro students than it is with its whites.

Cornell remains accessible only to the very gifted Negro student. The majority of white colleges have yet to break this barrier. And Cornell is way ahead of most in meeting the needs of its black students once they are admitted.⁶

There is much more which could be said to illustrate a lack of equal opportunity in higher education. But I trust that the point has been made. If we add what we find in higher education to all the other areas where there is a similar lack of equal opportunity, where does this leave us today in the South or in the nation?

The full implication of lack of opportunity cannot be exhausted by simply examining the facts which support the contention that the American dream of equal opportunity is just that—still a dream. The full implications are much more devastating.

Let us look at just a few of the moral, social, economic, and political implications—what they have to say about national priorities and perhaps even the very survival of this nation.

The Judeo-Christian ethic, as well as our Constitution, speaks of equality of opportunity as the foundation of our way of life. To the extent that we fail to recognize how widespread or how devastating is

4. Sanders and Palmer, *The Financial Barrier to Higher Education in California*, 1965.

5. Cornell Special Education Projects, Cornell University, 1969, p. 5.

6. Ernest Dunbar, "The Black Studies Thing," *New York Times Magazine*, (April 6, 1969), p. 26.

the denial of equal opportunity in this nation today—while at the same time continuing to proclaim that equality of opportunity is one of the blessings of democracy—we are at best ignorant and at worst hypocritical. Is not this ignorance and hypocrisy exactly what so many of our students are attacking today? They see the conflicting moral issues. They understand what the Urban Coalition was talking about when it said “the nation, in its neglect, may be sowing the seeds of unprecedented future disorders.” I am not speaking about student anarchists, for they will be exposed in time for what they are. No, I am speaking about the moderate majority, for that is where the real danger lies. It is this moderate majority who are facing the moral dilemmas of our time and, often for the first time, learning just how numerous and deep-rooted they are. They see moral dilemmas such as justice applied unequally and enormous expenses for war and in space and they compare them with small investments to achieve equality of opportunity in education, health, and justice. Is it any wonder that they say, “There must be a better way.” Are they wrong?

Let us look at the economic implications. What is the cost of failure to provide equal opportunity? What is the price in terms of increased costs of welfare, prisons, mental institutions, and income lost and goods not produced? Even the most rudimentary cost-benefit analysis would reveal how foolish we are not to invest in equal opportunity, if for no other reason, as a matter of enlightened self-interest.

Let us look at the social implications. What is the true source of revolution? Is it not a feeling of oppression growing out of expectations which exceed reality? To see the supposed rewards of our affluent society on television, to be given aspirations in one’s school and one’s church, to be taught the American dream and then find out that you really can’t participate goes beyond frustration and becomes oppression. Is there any lack of proof that this is what is happening? Have we forgotten Newark, Watts, and all the others?

To return to education, look what is happening today. At the very time that Talent Search, Upward

Bound, and other similar programs are increasing the demand from the disadvantaged to attend trade and business schools and college, major cuts are being made at the federal level in aid for needy students. Current recommendations will have so severe an impact that some institutions will need all available funds just to keep their present enrollment in college and will have virtually no aid for new students.

If we are going to make promises, we had better deliver or expect a revolution.

Politically we have again sown the seeds of rebellion. We have already talked about the students—black and white—the concerned majority as well as the militant minority, who are saying that “somehow the traditional hidebound establishment has gone off the track.” They claim it has “abandoned the spirit of its democratic ideals and become bogged down in technocratic irrelevancies.” Again I ask—are they wrong, or are we wrong to be blind to the facts?

But it is not just the students who give us warning. We need only look at the last presidential election to realize that the majority probably voted against the current order of events. How long can any democracy survive if the majority of its population can only agree on what it is *against* rather than what it is *for*? How long can a democracy survive when it can be described by respected national studies as being “racist” and being “two societies, black and white, and increasingly separate and scarcely less unequal”? How long can a democracy exist which does not even know the real extent of the denial of equal opportunity?

In our consideration of “a changing south in a changing nation,” the time is overdue for those of us who were “born right” to ask if we are changing rapidly enough to meet the demands of our time—and if we are even changing in the right direction. We better ask those questions now—and find the answers—before the chance to find answers is taken away from us. I suggest the first step is to commit ourselves to making the dream of equality of opportunity a reality.

SPEAK to ME . . . in P P B

PROGRAM, PLANNING, AND BUDGETING

Now We Can Show Returns on the Dollars Spent for Education

by Robert T. Williams

[Editor's Note: The author is a Research Intern at the Center for Occupational Education at North Carolina State University, where he is helping the Department of Community Colleges develop a PPB system. He has taught in both secondary schools and technical institutes and was formerly Director of Technical Vocation Programs at the W. W. Holding Technical Institute. He is scheduled to receive a Doctor of Education degree from the University of North Carolina at Chapel Hill this June.]

Education is rapidly moving into a period that could provide answers to those who criticize its lack of specificity. Techniques are being developed to measure educational programs in terms of quantifiable outputs. Some educators will see this trend as a threat to their traditional methods of operations—and it is—but most will welcome the probabilities for more efficient operations, increased budgets, and decision-making based on facts and research.

The stimulus to the trend is provided by PPBS: Planning, Programming, and Budgeting Systems. The elements of the system are not new, but their application to education is. Where educational administration has traditionally been

absorbed with “putting out fires” caused by inadequate resources and poor planning, the emphasis of PPBS on long-range planning promises to reduce dealing with problems that are always at the crisis stage.

Characteristics of PPBS

A Planning, Programming, and Budgeting System is a tool to be used by decision-makers. It does not make decisions; rather it produces recommendations in a format allowing the decision-maker to see what effects his decisions will make on specific programs, and to see how a specific program relates to the entire educational system.

Conceptually, PPBS contains three categories: structural, informational, and analytical. The structure is developed by listing a few areas that encompass all educational programs, then breaking these down into subcategories. HEW has adopted six broad education categories:

1. Development of Basic Skills and Attitudes
2. Development of Vocational and Occupational Skills
3. Development of Advanced Academic and Professional Skills

4. Individual and Community Development
5. General Research
6. General Support

The program structure provides a functional framework for administrative organization.

The informational aspects of PPBS refer to the gathering and organization of data on enrollment, completions, costs, etc., which will be used in planning and programming. Before an ongoing system is converted from line-item budgeting, the question “What data are needed in order to make effective decisions?” must be answered. Management principles such as reporting by exception and summarizing data as it passes upward in the administrative structure are important in deciding what data are needed by each decision-maker.

The analytical aspects refer to special analytical studies that attempt to predict and compare the costs, benefits, and effectiveness of all programs developed to meet a stated objective. In the business and research world, this is called systems analysis.

The output of the PPB system appears on three documents. The

first is a Program Structure, a listing of the broad categories and their subcategories. The second is a Program and Financial Plan (PFP) which lists specific objectives, the programs recommended to accomplish the objectives, and all costs of these programs. The PFP could also contain a rearrangement of proposed expenditures into traditional line-items, especially during the transition period. The third is a Program Memorandum (PM), which is a nonstatistical summary of recommendations made by the planners to the decision-makers, with supporting rationale.

Four important characteristics of Planning, Programming, and Budgeting Systems are:

1. *Long-range Planning.* PPBS emphasizes long-range planning (with projected costs) as opposed to the "foot-in-the-door" method of program expansion. Under PPBS, a proposal to start a kindergarten system would include first-year costs per so many students, second-year costs per so many more students, etc., through at least the first year of full implementation.

A long-range (5-20 years) plan for occupational education would be based on projections of the state's economy and on goals for this educational system. One such goal might be "To produce annually the number of technicians needed to support the state's industry." If a ten-year plan were adopted, then alternative programs for building the educational system to this capacity would be developed, priced, and recommended to the State Board of Education. Then the Board would try to sell its decision to the legislature. If the legislature did not provide the full support needed for the first phase of implementation, then subsequent phases of the plan would need to be revised.

Each program under an agency's jurisdiction would carry its own price tag. The legislature (or coun-

ty commissioners) could eliminate a particular program without eliminating the agency. It would accomplish this directly, not by making an across-the-board cut, leaving the agency to juggle from one program to another.

The costs of planning, which would include salaries of planners, and the benefits to be derived from planning, would also be projected. Under PPB, planning is not a collateral duty but necessitates one or more professionals and supporting staff. One of the funding group's earliest decisions regarding PPB is to the commitment that planning must be an organized essential part of the agency's administration.

2. *Emphasis on Output.* PPBS is output-oriented rather than input-oriented. This means that the numbers of teachers, classrooms, and school buses are part of the *process* of education, not the end *product*. They can be determined only *after* the quantity and quality of product desired have been decided. Administrators are forced to spell out what the system should accomplish: Should our percentage of high school graduates be increased to 60, then 65, then 70 over a specified time period? Should high school vocational education opportunities be available to the extent that each boy and girl can choose between at least three vocational curricula? Should every student at the junior high level have the opportunity for at least two years of industrial arts education? Should a passing grade in certain courses be supported by a minimum score on a standardized achievement test?

Output goals are not derived from the amount of money likely to be available, but rather indicate what the system should accomplish. This involves policy statements about the instructional program. They will include numbers of students to be served, percentage of the student body to be given a particular opportunity, level of achievement to be obtained, or other output measures.

Table I contains actual data not previously organized in this manner. It raises questions about completion rates, the appropriate mix of enrollments, and the possibility that some fields are over-enrolled. But without follow-up information indicating how the students were subsequently employed, the effectiveness of the educational programs is unknown. Although Table I gives output information, by itself it is not sufficient evidence upon which to make recommendations for program change.

3. *Program Alternatives.* Once desired outputs have been determined, PPBS encourages the consideration of more than one course of action leading to the accomplishment of an objective. One set of alternatives might consist of different teaching procedures. Another set might consist of different ways of scheduling classes. Educators have traditionally thought of time (e.g., 180 classes of one hour each) as a constant and achievement as a variable. The advent of flexible scheduling, programmed materials, and computer-assisted instruction has made it possible for achievement to become the constant and time the variable. If a stated percentage of students must reach a minimum level of achievement, this can be done by letting some students take longer than others to do so.

One current pair of alternatives is offering auto mechanics training in school shops in some schools and on the job in commercial shops by other schools. In decision-making with PPBS, the cost per student of each alternative is considered along with the advantages and disadvantages of each alternative.

Alternatives for a particular program might be reported in this way:

- (a) To continue the program at the present level of quality of services, reaching 3,000 clients per year, the proposed

Table I

Supply and Demand of Trained Workers in North Carolina, 1966-1970, for Selected Occupational Groupings

Occupational Group	Post-Secondary Curricula		MDTA Classes		New Industry Classes		Secondary Curricula		Total Supply		Demand	Difference	
	Enr	Gr	Enr	Gr	Enr	Gr	Enr	Gr	Enr	Gr		Excess Supply	Excess Demand
Drafting and Design	4,487	1,654	113	64	6	6	10,996	250	15,602	1,974	2,089		115
Architectural and Engineering	4,522	1,735	0	0	0	0	0	0	4,522	1,735	3,356		1,621
Mathematics and Physical Science	1,784	545	0	0	0	0	0	0	1,784	545	2,115		1,570
Metal Processing and Foundry	0	0	0	0	24	24	0	0	24	24	583		559
Chemical and Plastic Processing	241	77	20	11	226	225	0	0	487	313	302	11	
Metal Machining and Metal Working	2,752	1,283	235	141	2,540	2,440	1,542	491	7,069	4,355	6,630		2,275
Mechanical and Machinery Repair	6,811	3,136	790	536	24	24	3,359	1,262	10,984	4,958	6,312		1,354
Wood Machinery	0	0	138	95	232	227	1,013	314	1,383	636	4,007		3,371
Textile Machine Work	223	53	0	0	232	231	0	0	455	284	1,822		1,538
Measuring and Controlling													
Instrument Repair	14	1	0	0	143	138	0	0	157	139	198		59
Electrical Equipment Assembly and Repair	1,643	604	174	128	3,742	3,590	1,399	293	6,958	4,615	1,085	3,530	
Upholstery	363	192	232	127	21	15	0	0	616	334	2,216		1,882
Metal Fabricating and Welding	3,054	1,144	1,319	885	720	680	569	196	5,662	2,905	6,279		3,374
Electrical Installing and Repair	1,299	569	607	427	2	2	4,196	880	6,104	1,878	5,567		3,689
Construction and Related	1,275	565	1,807	1,159	7	7	19,987	8,773	23,076	10,504	18,933		8,429
												3,541	29,836
													-3,541
Totals	28,468	11,558	5,435	3,573	7,919	7,609	43,061	12,459	84,883	35,199	61,494		26,295

Source: Robert T. Williams, "An Analysis of Worker Supply and Demand Data for Program Planning in Occupational Education." Unpublished Doctoral Dissertation, May, 1969.

cost for the next biennium is \$200,000.

- (b) To reach 5,000 clients per year at the present level of quality of services, the proposed cost is \$280,000.
- (c) To reach 7,000 clients per year at the present level of quality of services the proposed cost is \$340,000.

The decision-maker could choose any one of the options with reasonable assurance that he would know just about where this program will be during the next budget period. He has a gauge by which he can measure this program's effects when a subsequent budget is under consideration.

4. *Program Evaluation.* By stating goals and objectives in quantifiable terms, the decision-maker can look back and measure the extent to which they were attained. This is true for the legislator examining kindergarten expenditures, and also for the teacher asking the student to differentiate between things in *at least three* ways. The program administrator will set his own program criteria and will expect to be measured by them. Under PPBS it is not enough to enroll (input) so many students in technician programs; the administrator must be able to produce follow-up data showing that so many of his students have been

placed (output) in occupations for which they were trained.

Output measures can also be stated in terms of dollars per unit (cost/effectiveness) or dollar return per dollar spent (benefit/cost). A traditional cost/effectiveness measure in education is per pupil expenditure—except that it is not standardized *qualitatively*. It is presently an input measure telling nothing about what was received for the money spent. An output statement might be "The average cost for training and graduating sixteen practical nurses in one year was \$700 per student." Such measures of effectiveness can be used to compare the costs of two similar programs.

Figure 1 gives an example of how information can be analyzed and incorporated into recommendations. Assume that in a certain series of similar classes records showed the cumulative percentage of students meeting an achievement objective at biweekly testing intervals. When the weekly cost of instruction is known, it might be recommended that the course be terminated after eight weeks for future sections. The decision-maker may feel that the cost of the last four weeks cannot be justified by the few additional persons who meet the objective during that period, and that the ninth week begins a period of diminishing returns.

If it were desired to compare two different programs—e.g., education with health—benefit/cost ratios could do this. If a certain educational program yielded \$8 for every dollar spent and a certain health program yielded \$3 for

every dollar spent, then priorities for funding might be set up on a yield basis. But when comparing different programs, especially in different fields, the mixing of “apples and oranges” necessitates other bases for judgment in addition to benefit/cost ratios.

Illustrations

Two problems, one applicable to the state level and another applicable to the local level, follow. The statistical methodology for solving them will not be given. However, educators will sometimes need to use the services of economists, statisticians, system analysts, sociologists, and political scientists in considering the effects of their decisions and recommendations, and these illustrations demonstrate how PPBS can make these expert services available to decision-makers.

Assume that the State Board of Education approves a recom-

mended objective to eliminate all out-of-field teachers of mathematics by fiscal year 1975. The objective is measurable in that a time limit is put on it and a quantity of zero is to be attained. The actual number of out-of-field teachers of mathematics in 1975 can be counted and compared against zero, thereby determining the extent of progress made toward accomplishing the objective. It remains for planners in the State Department of Public Instruction to devise programs that would attain this goal, compute the respective costs and benefits of the programs, and recommend a plan for implementation. Some alternative programs could be:

1. Reduce certification standards of mathematics teachers;
2. Reduce the teaching load of mathematics teachers;
3. Pay mathematics teachers a significant salary supplement;
4. Increase the teaching load and provide computer terminals and programmed instructional materials;
5. Double the size of mathematics classes and concentrate on the lecture method.

Costs and benefits of these alternatives immediately come to mind. Special analytical studies would be conducted, such as predicting the number of qualified candidates that alternative (3) would attract for each increment of, say \$200. (A similar study has already been undertaken in North Carolina—for vocational teacher supply.) Alternative (3) would probably generate another study to predict the number of non-mathematics teachers who would resign in indignation if the alternative were adopted! This is a cost the planners would have to consider. Such a study might show that there are sufficient candidates in other teaching fields for the state to take the risk of adopting alternative (3). A possible cost of alternative (1) would be lower achieve-

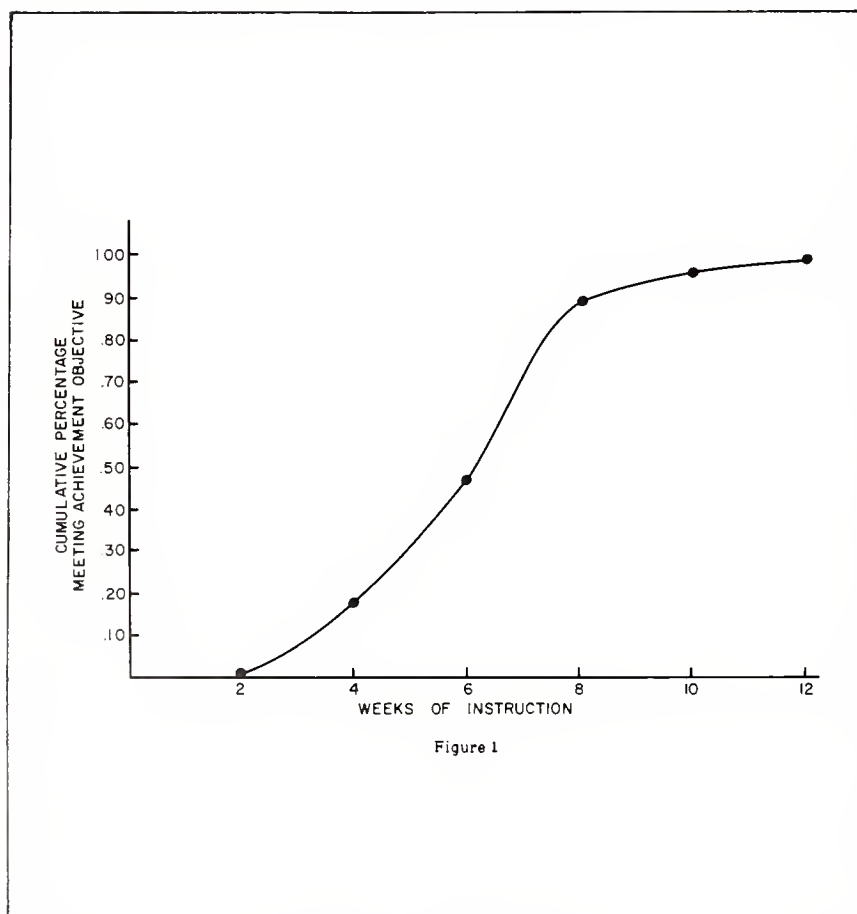


Figure 1

ment levels in mathematics. The extent of this decrease could be predicted, and the decision-maker would have to weigh the benefits against the costs.

This illustration represents a real problem—a serious problem—and one that will likely persist until attacked. A solution through systems analysis would produce a program to remedy it, with projected costs built into the budget. The effects of the decision on teacher-training expenses, salary schedules, and hardware could be predicted. This is quite different from letting each local superintendent and high school principal annually face the same problem, with no increased hope of satisfactory solution from one September to the next.

At the county or city level, a board might decide to undertake adult education in order to implement more fully its stated philosophy. One objective might be "To provide opportunities for all drop-outs in its administrative unit to earn a high school diploma or equivalency certificate by fiscal year 1972." This objective does not specify student numbers; undoubtedly many who would be eligible would not take advantage of this opportunity. The criteria of time and quantity are stated. Criteria of geographical availability and the time of class scheduling could also be added.

Alternative programs could include:

1. A cooperative agreement with the nearest institution in the community college system;
2. Standard classroom courses conducted by the unit;

3. Establishment of programmed materials centers throughout the unit to prepare candidates for the equivalency examinations;

4. Payment of transportation and tuition expenses to help candidates attend classes conducted in an adjacent unit.

Again, costs and benefits of each alternative could be predicted. Benefits might include the increased employability of the graduates, the effect that adult education has on the children of the candidates, and the increased self-respect of the graduates. This last could be measured by their increased civic participation, decreased crime rate, and subjective opinions. Also, a possible social cost of this program might be to encourage marginal secondary students to drop out at a higher rate, under the assumption that they can later get their diploma through the adult program. The board would have to evaluate the costs and benefits of such a by-product.

Limitations of PPBS

Some readers will recall the era of "efficiency in education" proclaimed in the period from 1910-25, when the principles of scientific management in industry were urged upon the schools as a panacea for solving the problems of the educational system. PPBS makes some of the same claims, but with a more realistic view of their limitations. One restriction will certainly be the old problem of setting measurable objectives. How do we measure music appreciation, or civic attitudes? PPBS is more successful in measuring the quan-

tity of education than its quality. It is more easily applied at the state level than at the classroom level. But to the extent that its analytical techniques can be applied in any educational endeavor, it can contribute to at least clarifying objectives and bringing alternative processes to light.

The implementation of a Planning, Programming, and Budgeting System will be restricted by the demands for change that it will make on the educational leadership. A proposal for its adoption assumes that improvement can be made, an idea that some people would rather not admit. The analyses will require more staff personnel, some of whom will not be education majors. The system requires attempts to measure effectiveness, and when necessary, to change operational procedures.

Summary and Challenge

In education, resources of time and money (converted to human and capital inputs) are applied to programs designed to accomplish objectives. PPBS is a management technique that can be used at all levels of the educational system to help make decisions more rationally than in the past. It will force policy questions heretofore avoided, and it will force a critical analysis of effectiveness. If we really expect to solve the big issues facing education, we must be willing to ask the right questions, to suggest bold alternatives, to pay for the analysis needed to obtain answers, and then to have the courage to press recommendations that will change the system enough to incorporate the solutions.

Sis and the Institute

Sis Steed always has given full cooperation and support to the Institute of Government and its programs. She also has drawn upon our resources at the Institute of Government in her substantial efforts to improve municipal government through the services of the North Carolina League of Municipalities. As a result, the two organizations enjoyed a cordial and productive association.

The character and personality of Sis Steed have made a lasting imprint upon local government in North Carolina. The organization she has built is durable and constructive. We congratulate her upon the accomplishments of a notable career.

John L. Sanders, Director
Institute of Government



Mrs. Steed with S. Leigh Wilson, who will be her successor as Executive Director of the League of Municipalities.

SIS STEED to RETIRE

SIS STEED has the love and respect of municipal officials throughout North Carolina. For thirty-five years she has served them ably and well through the North Carolina League of Municipalities. Since 1948 she has directed the agency, first as acting director, then for the past twenty-four years as full-time director and executive director. During her administration, Sis and her colleagues not only have worked closely with city and town officials throughout the state but also cooperated fully and effectively with the Institute of Government in programs of consultation, teaching, and research to advance the competence, efficiency, and standards of municipal government in North Carolina.

The value and success of League endeavors reflected the personality and character of Sis Steed. Born Davetta, but known affectionately throughout Tar Heel officialdom as "Sis," she has presided over an impressive expansion of League activities. The growth of the League from 208 to 370 member towns and cities, a 78 per cent membership increase, during Mrs. Steed's tenure as Executive Director, illustrates the strength of her leadership and the efficacy of her personal and organizational efforts.

So it is with mixed feelings of appreciation and sadness that officials and colleagues greet the word of her impending retirement. According to an announcement by League President Travis H. Tomlinson, Raleigh mayor, Mrs. Steed will retire effective November 1. She will be succeeded by S. Leigh Wilson, the League's Assistant Executive Director and a staff member for 22 years. Wilson has shared responsibility for much of the League's success. He can be expected to continue the sound leadership and growth of the North Carolina League of Municipalities. Yet he and public officials throughout North Carolina will keep a place for Sis in their hearts and miss her unique talents, personality, and character.

In his announcement Mayor Tomlinson paid appropriate tribute to Mrs. Steed. He said: "Sis Steed has contributed more to good government in North Carolina than any living Tar Heel. Her inspiring leadership for more than three decades has had an immeasurable effect on the upgrading of town and city government in this State. Mrs. Steed is known throughout the United States for her accomplishments on behalf of the citizens of North Carolina. We all owe her a great debt of gratitude."

Those general words of praise could be punctuated by examples of Sis's achievements beyond the requirements of her immediate responsibilities. She was the first woman to be named to the Executive Committee of the American Municipal Association (now the National League of Cities). She was appointed by North Carolina governors to such study and advisory groups as the Committee to Study Financing of Industrial Development, the Community College Advisory Council, and the Board of the Traffic Safety Council. The impact of Mrs. Steed's service upon the local government may be gauged in part from an awareness that the League of Municipalities is the official association representing town and city government in the state and is, therefore, a leader in helping to formulate statewide municipal policy. Sis Steed and her accomplishments will be remembered and cherished by those who have known and worked with her. All will join in a "Bravo!" for a job well done and will share in the wish and expectation that her voice and hand will continue to be heard and felt in local government in North Carolina.

THE FUTURE in PERSPECTIVE

by Davetta Steed

[*Editor's Note: Mrs. Steed, who is retiring as Executive Director of the North Carolina League of Municipalities (see pages 10-11), delivered the graduation address to the Municipal and County Administration class at the Institute of Government.*]

Just as the present is neither something that has just happened nor something that has been imposed upon us by an inevitable destiny, neither will the future be. Just as the past has been responsible for the present, the future is today being shaped to an important degree by decisions made and steps taken to implement those decisions.

To contemplate the future requires a momentary looking backward, for it is necessary for us to remember that we are part of the oldest unchanged system of government on earth. Our system has outlived almost all the crowns, thrones, and empires that stood when the American Constitution was proclaimed nearly two hundred years ago, and I am confident, as rocky as the way now seems, that when the twentieth century has passed, our system will still stand—unbowed, unbroken, and unburied. I have that much faith in the progress we are slowly but surely making.

No man can study our system of government or live with its operation without realizing that the

foundation of its strength is, and will always be, local self-government. I am convinced we can never meet our national and state responsibilities unless and until we first meet our local responsibilities. This is the challenge we still have to meet.

Americans have traditionally looked first to their local governments to cope with problems of public concern. As a result, the vitality of local government has become essential to the strength of our state and of our nation. And so, important things have happened to our city and county governments in the last twenty-five years. The import of technological advances, changes in our federal system, rapid urban growth, and what almost amounts to a social revolution have brought great transformations in the capabilities of cities and counties. The greatest impact on cities and counties, however, have been the fantastic change that has come over the governmental setting within which they must operate. Hardly any significant decision in urban affairs is made by a single city or a single county anymore.

And, just around the corner is that day when, because of the impact of urban affairs upon its operations, our state government must include local government affairs in its internal planning. Perhaps the proposed State Department of Local Affairs will provide the means for accomplishing this.

For over 70 percent of all Americans, local government today is "a public urban system expected to possess the power and authority to develop public policies, assemble and channel resources, and implement programs designed to mold the environment within which people live, work and play."

By whatever name, that urban system is local government. It is local government that represents government closest to the people. It is local government that must define community objectives and develop methods of achieving them in a democratic fashion. It is local government that must find power and resources to set in motion programs that carry out community decisions.

Yet this same urban system, or local government, still is not capable of raising sufficient resources locally to finance public services needed by all citizens *and*, at the same time, to finance solutions to the many critical social and physical renewal problems.

There are some who say that our nation is experiencing the most serious threat to its survival as a representative democracy in its 192-year life and that the threat is posed in terms of a challenge to the governmental system to accommodate the pressures of urbanization. They say also that the world is watching to see whether this nation can survive the supreme test of human brotherhood—the

ability of people to live together in an urban society in harmony.

If the present be so bleak, you may well ask, what then of the future? I believe that hope is all around us. Hope is in the evidence of an awakening by our citizenry—even some mayors, councilmen, county commissioners, and state officials—to the fact that this is, as we knew it would become, a state of cities, and that it is becoming more and more urban. Hope is in the giant steps being taken toward improved intergovernmental relations and positive intergovernmental cooperation and understanding. Herein lies the force that will finally obliterate petty sectionalism so that together, and hand in hand, the federal government and our state, county and city governments can provide the leadership required to tackle the great issues of today. Until quite recently, urbanization in the United States has been the product of a series of well-meaning but unrelated public and private decisions and programs that individually have merit but, taken as a whole, have produced results detrimental to the development of strong urban communities.

But progress is being made in the complex affairs of intergovernmental relations. Cities and counties have been experimenting with various ways by which joint decisions can be made—ranging from individual agreements to working relationships such as regional councils of elected officials; and, if the

number of state commissions appointed in the past few years to study local government is any indicator, our state government is showing an uncommon concern for urban affairs.

Then, of course, attached to the office of the Vice-President of the United States is the office of Intergovernmental Affairs; and for some years we have had the Advisory Commission on Intergovernmental Relations. Vice-President Hubert Humphrey once said: "A mature America must not be beguiled by immature fears of government working together." And he warned that "levels of government must function interdependently if any are to succeed independently."

Hope also is when a representative of the National League of Cities, the national association of the state municipal leagues, upon invitation, publicly criticizes the Advisory Commission on Intergovernmental Relations and his criticism is published. He told ACIR, among other things, that it should assume more responsibility for inspiring and motivating federal, state, and local officials, lifting their sights to the *higher objectives* that are obtainable only if they act in unison. Listen to his words: "ACIR represents a rare ray of hope for this complex democracy of ours. Because of its unique overview position, ACIR can bring new perspective to all levels of government often not seen by any one of them." But he said: "ACIR should be more 'gutsy.' It should act on the courage of its convictions—it

must see itself as a tradition-breaking, attitude-changing, self-interest-taming, resource- and responsibility-reshuffling, and inspiration-setting agency—acting with courage, imagination and determination."

Would that the ears of all governments would hear those words and heed them!

And finally, hope is in the caliber of those citizens, who, in spite of acknowledged back-breaking demands upon today's local government officials, continue to seek and to be elected to public office; and it is in those like you who continue to seek and accept public employment. It is in the advancements of the professional management of our local governments, aided so magnificently by the classes and seminars of this Institute of Government; and it is in the evidence of a growing realization by the people that we have—all of us—in our own way, been guilty of the pretense of demanding more yet all the while settling for much less.

I began by linking the past to the present—and the present to the future. I close now with words of the past, spoken by President Roosevelt in 1940 during his campaign for re-election: "The future lies with those wise political leaders who realize that the *great public* is interested more in government than in politics." Those of us gathered here this morning hear them now as words of prophecy.

DETERMINING the SUCCESSFUL BIDDER in LOCAL GOVERNMENT BOND and NOTE SALE

by George W. Swicegood

[*Editor's Note: The author is a staff member in the office of the Local Government Commission.*]

For over thirty-eight years the North Carolina Local Government Commission has supervised the sale of bonds and notes of North Carolina local governmental units evidencing borrowed money. During this time many hundreds of millions of dollars in bonds and notes have been sold. Such sales are made pursuant to advertisement by the Commission and the receipt of sealed bids. These debt obligations are sold through competitive bidding, except that in a few instances with respect to revenue bonds when negotiated sales are more expedient, they are sometimes sold privately. In each of the thousands of sales that have taken place, Commission officials have had to determine which bid they would accept from among the several bids that are usually received on each issue.

The necessity of deciding the successful bidder has caused the Local Government Commission to follow a standardized, highly formal procedure. This procedure is not peculiar to the Local Government Commission but is used by most financial institutions in the United States. Private individuals, and in some instances local officials, often ask the Local Government Commission to explain the method by which it determines the successful bidder. This article is an attempt to do so.

First, some definitions of terms:
Average Interest Cost: The effec-

tive average annual interest cost, as a percentage of principal, that the borrower must pay over the life of a bond or note issue.

Bond Year: A "bond year" begins as of the date that an issue of bonds is dated. A "bond year" represents \$1,000 maturing in one year. "Bond years" are multiples of \$1,000 for one or more years. For example, \$10,000 due in one year equals ten "bond years" and \$5,000 due in five years equals twenty-five "bond years."

Municipal Bonds and Notes: This term usually applies to the debt of any nonfederal governmental agency whose debt is exempt from federal income taxes. This would include the debt obligations of states, counties, cities, school districts, etc. But in this article, "municipal bonds and notes" do not include state bonds and notes.

Net Interest Cost: The total amount of interest that must be paid over the life of a bond or note issue, less any premium that the underwriters might have paid.

Successful Bidder: The investment banker, group of investment banker, or individual that offers to purchase bonds or notes at the lowest net interest cost to the issuer.

Years Average Maturity: This is the average number of years that a sale of bonds will be outstanding. This figure is very important to underwriters. The years average maturity can have a pronounced

effect on a bond issue's net interest cost.

Net interest cost is the criterion used for determining the successful bidder for a new issue of municipal bonds or notes sold at public sale. The procedures followed by the Local Government Commission in determining net interest cost have been developed over the years through practices and traditions generally acceptable in the municipal bond markets.

First the issuing local governmental unit prepares, with the help and approval of the Commission, a maturity schedule reflecting the amount of bond principal scheduled to mature each year. This schedule is included in the unit's official notice of sale and is used by the prospective bidder in making his proposal for the bonds or notes. The notice of sale follows nationally established "ground rules" for bidding and for determining the bidder offering to buy the bonds at the lowest interest cost to the issuer. Among the rules concerning interest rates are the following:

Bidders are requested to name the interest rate or rates, not exceeding 6% per annum. No interest rate bid may be more than two times the lowest rate named in the bid. No bid may name more than six interest rates, any of which may be repeated. All bonds maturing on the same date must bear interest at the same rate. The bonds will be awarded to the bidder offering to purchase the bonds at the lowest interest cost, such cost to be determined by deducting the total amount of any premium bid from the aggregate amount of interest upon all of the bonds from their date until their respective maturities. No bid of

less than par and accrued interest will be entertained.

Also, each bidder is asked to show the name and location of the bank where he will accept delivery of the bonds; and the winning bidder must within forty-eight hours after a sale inform the Local Government Commission whether it prefers the bonds to be printed in denominations of \$5,000 or \$1,000.

The schedule showing the amount of annual principal payments to maturity is used as the base for computing (a) the "bond years" schedule, and (b) the average years of life for the bonds sold.

● *Computation of Bond Years:* Table I, which is used to determine "bond years," contains the following information:

Column 1 shows the fiscal years in which principal payments are scheduled for maturity.

Column 2 shows the number of years from the date that bonds being sold are dated to the years in which payments are to be made for principal maturities. For example, if bonds being sold are dated June 1, 1965, and the first maturity payment is June 1, 1967, then two years will be shown for the 1966-67 fiscal year, increasing one year for each succeeding fiscal year.

Column 3 shows the principal amount maturing each fiscal year for bonds being sold. This schedule of principal maturities is included in the unit's official notice of sale in a section entitled "bids for bonds."

Column 4 shows the number of "bond years" applicable to each fiscal year during which principal payments are scheduled for maturity. The number of "bond years" applicable to each fiscal year as shown in Column 4 is determined by multiplying the number shown in Column 2 times the amount shown in Column 3 (000's omitted). For example, for fiscal year 1966-67, 2 (Column 2) times 15 (Column 3) equals 30 (Column 4).

Note: The sale of bonds as presented in Tables I and II was a sale made in 1964-65, the date of the bonds being June.

Table I
Computation of Bond Years and Years Average Maturity
Sale of \$(amount) on (date)

(1) Years of Maturity	(2) Yrs. from Date of Bonds to Date of Mat.	(3) Amount Maturing Each Fiscal Year	(4) Column 2 x Column 3 (000 omitted)	(5) Accumulated Bond Years
1966-67	2	\$ 15,000	30	
67-68	3	15,000	45	
68-69	4	15,000	60	
69-70	5	15,000	75	
70-71	6	15,000	90	300
71-72	7	15,000	105	
72-73	8	15,000	120	225
73-74	9	25,000	225	
74-75	10	25,000	250	
75-76	11	25,000	275	
76-77	12	25,000	300	
77-78	13	25,000	325	
78-79	14	25,000	350	1,725
79-80	15	25,000	375	
80-81	16	25,000	400	775
81-82	17	35,000	595	
82-83	18	35,000	630	
83-84	19	35,000	665	
84-85	20	35,000	700	
85-86	21	35,000	735	
86-87	22	20,000	440	3,765
[Totals]		\$500,000	6,790	6,790

$6,790 \text{ (total bond years)} \div \$500,000 \text{ (grand total amount)} = 13.58 \text{ years average maturity.}$

● *Computation of Years Average Maturity:* The grand total number of "bond years" as shown for Column 4 in Table I is divided by the grand total amount, as shown for Column 3 in Table I. An example of this computation appears in the lower portion of Table I.

● *Computation of Bond Interest.* Each bidder will designate on an official notice of sale one or more years of bond maturity(s) for which a certain rate of interest will be paid. In Column 5 of Table I, lines separate fiscal years into periods and the accumulated number of "bond years" applicable to each period are shown. These accumulated numbers of "bond years" correspond with certain

rates of interest designated by the bidder on his official notice of sale.

Table II shows a method for determining (a) gross amount of interest payable, (b) net amount of interest payable, and (c) net interest rate applicable to a sale. Column 1 shows years of maturity by periods for which a rate of interest will be paid for each period as reflected in Column 2. The accumulated number of bond years applicable to each rate of interest may be obtained from Table I, Column 5, and recorded on Table II, Column 3. The amount of interest applicable to each rate of interest may be determined by multiplying Column 3 by Column 2 and the results reflected in Column 4. The amount of gross inter-

Table II
Computation of Interest on Bonds Sold
Sale of (amount) on (date)

(1) Years of Maturity	(2) Interest Rate	(3) Accumulated Bond Years	(4) Amount of Interest, Column 2 x Column 3
1967-71	4.75	300	\$ 14,250.00
72-73	3.10	225	6,975.00
74-79	3.25	1,725	56,062.50
80-81	3.30	775	25,575.00
82-87	3.40	3,765	128,010.00
Total Bond Years		<u>6,790</u>	
Gross Interest Payable			\$230,872.50
Less Bidder's Premium			379.50
Net Interest Payable			<u>\$230,493.00</u>
\$230,493.00 (net interest payable) ÷ 6,790 (total bond years) = 3.394594 (net interest rate)			

est payable may be reflected in Column 4. If the bidder includes a premium, such amount should be deducted from the amount of gross interest payable in order to determine the amount of net interest payable.

To determine the net interest rate applicable to a sale, the amount of net interest payable may be divided by the total number of "bond years." An example of this

computation appears in the lower portion of Table II. Note that the net interest rate is expressed four digits to the right of the decimal point, and that if the fifth digit is 5 or more, the fourth digit is *not* increased.

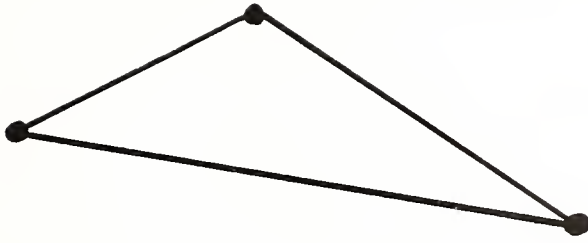
● *Computation of Note Interest.* The amount of interest payable on a note for one year is determined by multiplying the amount of a note by the rate of interest. If the

bidder includes a premium, such amount should be deducted and the resulting net amount of interest payable then divided by the principal amount of the note to determine the net rate of interest.

To determine the amount of interest payable on a note with a maturity of more or less than one year, the "fraction equivalent" amount should be determined. The "fraction equivalent" amount for a note may be determined by comparing its relative life to one year. For example, the "fraction equivalent" amount for (1) a \$50,000 note with a maturity of nine months would be 75 per cent, or \$37,500, or (2) a \$50,000 note with a maturity of eighteen months, the fraction equivalent amount would be 150 per cent, or \$75,000. The amount of interest payable on such notes may be determined by multiplying the applicable "fraction equivalent" amount by the rate of interest. If the bidder includes a premium, such amount should be deducted and the resulting net amount of interest payable then divided by the "fraction equivalent" amount of the note to determine the net rate of interest.

The Research Triangle and the Region

by Oscar R. Ewing



[*Editor's Note: The author is a director and member of the executive committee of the Research Triangle Foundation and a member and former chairman—for four years—of the Research Triangle Regional Planning Commission. A native of Indiana, he once was a law partner in New York City of Chief Justice Charles Evans Hughes of the United States Supreme Court. He served as adviser to Presidents Franklin D. Roosevelt and Harry S. Truman and was Administrator of the Federal Security Agency (now HEW) under President Truman. Now an adopted Tar Heel, he lives in Chapel Hill.*]

We have here in North Carolina something that is very exciting. It is the Research Triangle Park, which, after many vicissitudes, has achieved rewarding results. (And, may I say parenthetically, that much of my discussion has come from articles written by former Governor Luther H. Hodges or from articles for which he had been interviewed. Governor Hodges has been very much involved with and, to a large degree, responsible for the Research Triangle. Also, I have drawn freely on an article by Chester Davis in the *Winston-Salem Journal-Sentinel* for October 27, 1968.)

In the mid-1950's it was recognized that North Carolina was coming to a time of difficulty and hard decisions. The state's industrial employment was heavily weighted by agriculture, textiles and apparel, lumber and wood products, tobacco, food processing, and furniture and fixtures. All of these industries were growing at a slow rate. In spite of their importance—and their continued growth is still essential—these industries could not provide enough new employment opportunities. They could not sustain a high enough level of per capita income. They could not support a tax base sufficient to assume the forward-looking school, highway, and other promotional and service programs that were needed.

Another principal concern was the fact that North Carolina could not keep its young people at home. Their ideas and energies were being lost to us at an ever increasing rate. By 1950, for instance, native North Carolinians who were living elsewhere totaled

more than 20 per cent of the population then in the State. These were too often the gifted, the talented, the seekers who could not find their challenge in the state where they had been reared and educated.

Many individuals were worried about these things—about growth, jobs, income, and out-migration. By the middle of the 1950-1960 decade it was realized that the time to stop *worrying* about these problems and begin to *do* something about them had come. The obvious solution was to expand and diversify the state's economic base, to grow, and to attract the new technology-based industries that would create the products and markets of the future.

But how could all this be achieved? What inducements could be offered to industry that would be more compelling than those held out by other areas? How could it be demonstrated that North Carolina had not only the desire but the resources to support modern enterprise?

The key to the answer lay much closer to home than had been realized—in our three universities, the University of North Carolina in Chapel Hill, Duke University in Durham, and North Carolina State University in Raleigh. These were three universities clustered together in a tight geographic triangle in the populous eastern Piedmont part of the State. Their resources—separately and collectively—might prove just the foundation that was needed. It was recognized that trained, professional brain power is the greatest single resource available for regional economic and industrial advance. It is the university that fosters and nourishes this brain power. Its products are new knowledge, fresh ideas, young men and women trained in the modern disciplines of science and engineering, medicine, business, economics, and sociology. As such, the center of learning—the university—has become as decisive a regional asset as water resources, labor force, power supply, raw materials, or transportation.

It is the existence of the three universities within a single, close-knit intellectual community that made the Research Triangle concept possible 10 years ago. It is the universities that made the Research Triangle a reality today.

In 1956 a study group appointed by Governor Hodges decided that a Research Park should be created and located near the Raleigh-Durham Airport. Accordingly, the Research Triangle Foundation was organized which was to promote the Park and operate it. Any profits were to go to the three universities. The Foundation was also to establish a university-based and university-controlled Research Triangle Institute which would do research for government and industry on a contract basis. For this purpose the Foundation contributed to the Institute \$500,000, plus land for the Institute's campus. All profits of the Institute made on its research contracts were to be used for new facilities and equipment or given to the three universities.

The acquisition of land was to be handled by Pinelands, Inc., a private corporation. Pinelands would sell stock to finance the land purchases. Later, when land in the Park was sold to industries, any profits would be shared by the stockholders.

By September 1957, Pinelands had purchased or held options on more than 4,000 acres near the Raleigh-Durham Airport. With this land package assembled, Governor Hodges announced the launching of the North Carolina Research Triangle Park.

But soon the Pinelands project was in trouble. Private investors were cool toward it and stock sales lagged badly. In the summer of 1958, in a last-ditch effort to keep the program alive, Governor Hodges called in Archie K. Davis, chairman of the board of the Wachovia Bank & Trust Company, to help find ways to finance the whole Triangle project.

Mr. Davis looked at the books and immediately saw that private investors simply could not be counted on to finance the park through purchases of Pinelands stock. In what must be the high tide of optimism in North Carolina's long history, Davis said that, instead of appealing to investors on the basis of possible future profits, the Foundation should couch its pitch in terms of patriotism. He proposed that business and industry be asked to donate money to the Research Triangle Foundation as an investment in North Carolina's industrial future.

A goal of \$1,250,000—about half the amount actually needed—was selected and Archie Davis, a most persuasive man, set out to sell a proposition sufficiently outlandish to capture the attention of donors so sophisticated that they thought they had heard it all. When the returns were in—and they came in over a period of several years—Davis actually raised almost \$2,000,000.

By the end of 1959 optimism had returned. Chemstrand, the textile subsidiary of Monsanto Chemical Company, had purchased a 105-acre tract and announced that it would build on it a \$5,000,000 research facility. From 1960 to 1964 a few new facilities came to the Park, but there were less of these than had been hoped.

Early in 1965 the turn of the Park's fortunes came. The United States Public Health Service announced that it would locate in the Park on a 500-acre tract its National Institute of Environmental Health Sciences, which was to be a \$25,000,000 facility. About the same time International Business Machines Corporation announced that it would build a \$15,000,000 facility on a 400-acre tract of Park land. These announcements are what pushed the Research Triangle Park over the hill to success. A succession of other companies have followed in establishing research facilities in the Park.



You may be interested in one other thing about the activities of the Research Triangle Park, namely, its methods for acquiring new tenants for the Park. It does not advertise or make any public solicitation. The management picks out strong companies who need to carry on research but whose research staff would be greatly strengthened if it were backed up by the research staff and facilities of nearby universities. Park officials then contact these companies and endeavor to sell them on the idea of locating their own research facilities in the Research Triangle Park. This selling process usually takes months and sometimes years, but it enables the Park to be highly selective in its choice of prospective tenants.



The Research Triangle, as a strong center of research and high-technology industry in the Triangle, is proving of great benefit to North Carolina as a whole. The state's relatively unskilled labor force is being improved. Science and engineering graduates of the Triangle universities and other North Carolina institutions are less likely to leave and give other states the benefit of the training they received at home. In this regard, it is significant that about one-third of the Research Triangle Institute's professional staff members hold degrees from the Triangle universities; many have given up jobs out of state to return to North Carolina.

Significant intangible benefits to the state result from the Triangle's growth, too. The ties between North Carolina and the industrial and financial centers of the North are increased every time a large company such as Monsanto or IBM establishes a facility in the Triangle. The Triangle aids the entire state by imparting sharper focus to industrial promotion efforts and presenting a new picture of North Carolina to companies looking for sites.

Recent announcements that two other major industries, the pharmaceutical houses of Becton-Dickinson and Co. and Burroughs Wellcome & Co.,

will build laboratories in North Carolina's Research Triangle Park are additional proof that the Triangle is becoming one of the nation's most successful research parks.

Of the 126 research parks in the United States, the Triangle Park is second in size, fifth in total employees, and second in number of scientists and engineers.

But the Research Triangle Park is contributing more to this state than concentration of scientific and engineering know-how. For example:

—Besides the payrolls of its tenants—\$50 million a year to 5,000 persons—the Park is attracting new industries to North Carolina. Hercules, Inc., which has a research facility in the Park, is building a big plant to produce artificial fibers in Wilmington. Burroughs Wellcome & Co. is planning a research facility in the Park and a big plant in Greenville, North Carolina, consisting of some 500,000 square feet of floor space on about 300 acres of land. And these are two of several examples.

—The Park has slowed the drain of scientific talent from North Carolina; it may have even reversed it. A growing number of persons born in this state are coming back because of jobs created by the Park.

—Land once valued at \$20 to \$30 an acre for tax purposes has now, or soon will have, facilities on it valued at \$120,000,000. The people working in these facilities earn more than two and a half times the average per capita income in the Raleigh-Durham-Chapel Hill area. They pay about \$100,000 a year in state income taxes.

A listing of the research activities in the Research Triangle Park involves most of the nation's growth industries. Polymers, computers, electronics, man-made fibers, computer communication equipment, education policy, operations research, solid-state physics are only examples of the words included in any subject listing concerning the Park. The firm names include well-known trademarks like Hercules and IBM; they include new organizational patterns like the Research Triangle Institute, a new type of contract research agency; they include a state agency sponsoring research; and of course they include the major federal Environmental Health and Air Pollution Control agencies.



To repeat in summary concerning the Research Triangle—this conscious effort to develop a research center for growth industries in this one small part of North Carolina is dramatic, but also is representative of the new industrial development now in progress throughout the State. And I give great credit to the State of North Carolina for being willing to think very directly concerning its economic development problems. The arts and sciences of a region are necessarily greatly dependent on the region's economic strength. By improving the economic strength of this region, the Triangle makes possible a richer development of its arts and sciences.



Book Review

Minorities and the Police, by David H. Bagley and Harold Mendelsohn. New York: The Free Press, 1969. Pp. 209, \$6.95 cloth.

This book reports the findings of an extensive study of factors that influence relationships between the police and the community. The study—completed in 1966 in Denver, Colorado—follows a traditional but important pattern of investigation and reporting. However, the reporting is not of the clinical, dispassionate, almost bloodless type found in most social science treatises. Instead it seeks insights in the essential areas of police-community relations, contacts on an individualized and collective basis, and more important, the percep-

tions minority groups have of the police and the perceptions the police have of themselves as well as members of cultural minorities. Finally, some portions of the book are prescriptive. Suggestions for improving understanding between the police and the public are well worth the time and effort of the reader.—H.D.M.



Traffic and the Police; Variations in Law Enforcement Policy, by John A. Gardiner. Cambridge, Mass.: Harvard University Press, 1969. Pp. 174, \$6.00 cloth.

The traffic ticket is a long-standing source of confusion, consternation, and concern to the recipient. Professor Gardiner's book indicates that these troublesome reminders

of tardiness or errors of omission or commission while operating an automobile are much more than decorative windshield nuisances or impositions upon the pocketbook. They are substantial indices of the policy and operational norm preferences of law enforcement agencies, as well as a number of community political values these norms reflect.

Traffic and the Police shows the interplay of the courts and the city administration as well as overt and covert public pressures as influences upon traffic enforcement practices. It relates this interplay to the administration of justice in the community. Yet, the volume confirms a persistent public suspicion that no widespread, uniform traffic enforcement policy can or does exist from community to community in the nation.—H.D.M.

The 1969 Legislative Service

The "Raleigh branch" of the Institute of Government has been in operation for thirty-four years. It is more accurately known as the Institute Legislative Service. Beginning about a month before each regular and special session of the General Assembly starts and ending about a month after the session concludes, a selected group of Institute staff members operates from offices in the State Legislative Building. Their job is to cover the daily sessions of the General Assembly, analyze the content of each bill introduced, keep up with the calendar action, consult with legislators, and publish daily, weekly, and local, and final bulletins on legislative action.

Milton Heath's job in Raleigh starts earlier and ends later than that of the other staff members. Heath, Associate Director of the Institute, heads the Institute's legislative staff for the third consecutive session. His job is to oversee the operation, ranging from planning such matters as supplies, help, and procedure to editing copy and seeing that the bulletins get out on time. Other regular members of the legislative staff this session are George Cleland, David Lawrence, Bill Benjamin, and A. D. Frazier. In addition, veteran staff members including Ed Hinsdale, Elmer Oettinger, Ben Loeb, Mason Thomas, Taylor McMillan, David Warren, and Robert Phay have pitched in on occasion. For the most part, the group has worked on a four-man-at-a-time basis, normally Heath and three others. Regulars Lawrence and Frazier were off at the time the pictures on these pages were taken.

Some 2,000 public officials and interested private firms and citizens receive the DAILY BULLETIN, which contains a complete analysis and information about each bill introduced that day in the House and the Senate as well as calendar action. This year the computer does much of the work on calendar action, relieving the staff of a time-taking chore. The WEEKLY BULLETIN, written in more journalistic form, goes to newspaper people and radio and television news staffs as well as appropriate officials. *Local bulletins* are sent to affected counties and cities affected by specific legislation analyzed therein. The FINAL BULLETIN and a special legislative issue of *Popular Government* reach some 7,000 people, including more than 6,000 state and local officials in North Carolina.

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Photos by Ted Clark



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1. Bill Benjamin, Dave Warren, Milton Heath, and George Cleland check the computer. Mrs. Frances Kidwell is the operator. 2. Milton Heath, who directs the Institute Legislative Service, opens a busy day. 3. George Cleland examines both the General Statutes and an earlier Institute bulletin in researching a new bill. 4. Mrs. Deanie Mahood answers an inquiry while Heath goes over material with Mrs. Irma Green.

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State of North Carolina
LOCAL GOVERNMENT COMMISSION

<i>(1) The Bond Buyers Index</i>		<i>Yields Currently Available</i>	
<i>Date</i>	<i>20 bonds</i>	<i>11 bonds</i>	<i>National Volume Outlook, April 25, 1969 on North Carolina Issues (%)</i>
4-24-69	5.09	4.98	Blue List Supply \$410 million
4-17-69	5.13	5.01	30-Day Visible
3-27-69	5.30	5.18	Total Supply
	4.31	4.19	Total Supply Last Week
			488 million 10-year 4.45%
			898 million 4.60%
			381 million 20-year 4.85%
			5.00%
			4.75%
			5.10%

Recent Bond Sales in North Carolina

<i>Issuer</i>	<i>Date of Sale</i>	<i>Purpose</i>	<i>Amount</i>	<i>No. of Bidders</i>	<i>Years</i>		<i>First, Second, and Last Bids</i>	<i>Winning Manager</i>	<i>Moody's Rating</i>	<i>NCMC Rating</i>
					<i>Life</i>	<i>Average</i>				
City of Burlington	4-1-69	San. Sewer & Fire Sta.	\$ 3,825,000	5	15.04		5.3170,5.3630-5.3799	FUNB	A	80
County of Wilkes	4-1-69	Refunding	182,000	5	9.41		5.7324,5.8428-5.9995	E.C. Morris	Baa	76
City of High Point	4-15-69	Various Purpose	6,150,000	9	13.22		4.9572,4.9597-5.0672	First Nat.		
County of Davidson	4-15-69	School Building	85,000	5	6.11		4.9942,5.0163-5.2019	City Bank	Aa	83
Town of Mount Gilcard	4-15-69	Water	75,000	4	8.00		5.9000,5.9060-5.9687	Wachovia	A-1	89
City of Albemarle	4-22-69	Electric & Fire Sta.	450,000	8	5.50		4.8127,4.8318-4.9727	Wachovia	NR	65
Town of Banner Elk	4-22-69	Water	13,000	4	7.00		5.9450,5.9668-6.0000	Trust Co.	A	82
County of Alamance	4-29-69	Refunding	600,000	7	10.83		4.9586,4.9586-5.1561	of Georgia Branch	NR	NR
City of Southport	4-29-69	Electric & Recreation	200,000	3	10.50		5.7392,5.8476-5.9357	NCNB	A	86
								First Cit.		
								Blk. & Tr. Co.	NR	66

Visible Bond Issues May 1, 1969-June 15, 1969

Town of Chocowinity	5-6-69	Water	\$ 135,000
Town of Bakersville	5-6-69	Sanitary Sewer	115,000
City of Gastonia	5-6-69	Water	280,000
City of Winston-Salem	5-6-69	Various Purpose	12,000,000
County of Gaston	5-13-69	Hospital	4,000,000
City of Raleigh	5-20-69	Water	600,000

(1) The Weekly Bond Buyer, April 28, 1969, P. 67.

Edwin Gill, Chairman and Director
Harlan E. Boyles, Secretary
Edwin T. Barnes, Deputy Secretary