

# Virginia RECORD

JULY 1959

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## In This Issue:

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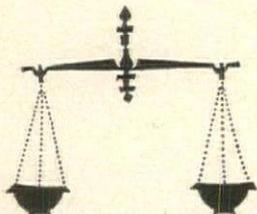
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"THEY'LL PROBABLY NOT BE AT HOME"

by CLIFFORD DOWDEY

THESE are the months of nostalgia. In the long summer days, with the slow-falling dusks, the changes from a quieter time become more pressingly evident. The outward evidences of the basic changes most felt by the senses are, of course, the automobile and the audio-visual instruments called radio and TV. These 20th century developments were the essential contributors to the direction of Americans' energies away from the center of home and family communities, and into outwardly imposed channels which made no demands on the inner resources of the individual. It is, of course, not that these symbols of group-man are in themselves destructive to the inner resources of the individual, but the uses to which they have been put, the dependence upon their mechanical support, has tended to widen the chasm between the soul of man and his natural environment. They have been merely the means he used for separating himself from a center, a spiritual home on earth.

Before these means of escape were available, Americans, even if of necessity, strove to adjust the inner individual harmoniously to a natural environment centered about the home and community. No bright editor, looking for means to increase magazine-circulation, was needed to invent a treacherous artificiality such as "Togetherness." Individuals were together through the act of belonging to a stable environment which represented, in that era of eternal time, a home for the spirit.

People were motivated from the inside outward to find their fulfillment in a limited macrocosm, whether a city block or a country neighborhood. This was not always easy, for the so-called "good old days" could produce a dullness which, if endured, as many did, would stifle the stoutest spirit. But the

old days seem good because most people, refusing to endure and yet not seeking escape, found a fulfillment within an existing pattern. By their fulfillment, the individuals made the times seem "good."

I remember as a young person, what today would be called a younger group of "teen-agers," suffering an absolute suffocation of boredom on a hot Sunday afternoon. Many survivors of those good old days in Virginia must remember those summer Sunday afternoons as something Dante could have used.

After the family returned from church and gorged themselves on a mid-day Sunday dinner, the blinds on the windows were shut, green curtain-shades pulled down, and the adults took to beds or to pallets laid on the floor for less heat. In this purgatory of shadowed stillness a lonely young person slunk from room to room, a fully embodied ghost looking for a place to light, until, in desperation he ventured into the blinding glare of two o'clock

COVER NOTE:

The lure of the sea calls vacationing Virginians to the Atlantic, the Chesapeake and its salty tributaries. In their heart lives the sailor spirit. Our cover shows a group making shipshape their vessel, under beautiful supervision, to hoist sail, cast off and plough the briny blue.

heat on the front porch. In all directions, not a sign of life was seen. Happy companions were all swallowed up in the tombs of their own homes, or, as one would enviously imagine, be off somewhere enjoying themselves.

The father would be the first to appear, still somnolent but renewed, and glancing up and down the deserted street with no indication of any boredom whatsoever. He would say something like, "Old man So-and-so ought to get that fence painted."

Receiving no answer from the son, sunk in an apathy of self-pity, he would say, "What's the matter with you? Lost your best friend?"

"I haven't got any friends. They've all disappeared, and I haven't anything to do." (Continued on page 42)

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# Purchases and Supply

by HARRY L. SMITH

G. LLOYD  
NUNNALLY,  
*Director*



VIRGINIA'S newest state department is saving many thousands of dollars in purchasing supplies and equipment used by the various agencies of the Commonwealth.

The Department of Purchases and Supply (formerly the Division of Purchase and Printing) was established in June, 1958, and G. Lloyd Nunnally, at the time purchasing agent for the State Department of Highways, was named by Governor Almond as its director.

As its name indicates, the primary purpose of the department is to buy supplies and equipment for the agencies of the state. These requests come in many different forms.

"Along with requisitions for the more common commodities, it is not unusual to receive a request to purchase such items as art supplies, trout eggs, or a tester to determine the electrical re-

sistivity of shoe soles. Once we received a requisition for a \$65,000 pipe organ," Mr. Nunnally said.

Soon after he became director, Mr. Nunnally, who is active in several purchasing agents' organizations, divided his department into three divisions—(1) administrative, (2) printing, and (3) purchasing.

He also moved quickly to set up a plan by which food could be purchased for state institutions more efficiently and with greater economy. Aware of the needs and complexities involved, Mr. Nunnally established a series of regional food councils so that the food service directors of state institutions could meet and co-ordinate and standardize their needs.

The program began with the formation of a regional food council in the Charlottesville-Staunton area which included the following institutions: Western State Hospital, University of Virginia, the Virginia School for the Deaf and Blind, Woodrow Wilson Rehabilitation Center, Blue Ridge Sanatorium, Madison College, DeJarnette Sanatorium, and the State Lime Grinding Plant No. 1. Located within easy driving distance of each other, Mr. Nunnally noted, all these institutions can be serviced by a single delivery truck.

"Analysis of the quarterly requisitions for groceries, canned goods, meat products and cheese disclosed that there were many occasions when lack of coordination in placing orders resulted in

*Members of the Board of Purchases and Supply. From left to right: Lester Williams; W. Frank Smyth, Jr.; Dr. C. H. Wheeler, Chairman of the Board; Stuart K. Cassell; Wingfield Chick; G. Lloyd Nunnally, seated.*



both inventories and prices being higher than necessary," Mr. Nunnally explained. "Our basic objective in establishing a systematic ordering through the regional food councils, was to re-

*Purchases and Supply Staff. R. J. Ransone, Administrative Officer; W. E. Butler, Printing Manager; R. T. Scott, Purchase Manager; Mrs. Dorothy Ayres, Confidential Secretary; G. Lloyd Nunnally, Director.*



duce the cost of food and at the same time maintain or improve food quality."

An extensive study directed toward improvement in the drug purchase program resulted in the quarterly requisition method being replaced by open-



*General Office Personnel. Seated: Mrs. Margaret W. Moss; Mrs. Dorothy E. Taylor; R. J. Ransone; Mrs. Mary L. Darling; Mrs. Antoinette P. Cross; Mrs. Margaret B. Taylor. Standing: Delores K. Ziegler; Harry T. Martin; Mrs. Eleanor D. Wickwire; Mrs. Sue M. Weaver; Shirley H. Crews; Mrs. Mattie T. Elam; Mrs. Lucy B. Alcock; Mrs. Evelyn A. Maynor; Travers M. Dobyms, Jr.; Joyce M. Scott; George M. Hawkins; Mary W. McKenzie; Eugene H. Vest; Irving R. Vanderberry; Mrs. Dorothy F. Ayres; J. Irving Brooks, Jr.*

end contracts based on sealed bids and negotiation.

Under the quarterly purchase program, it was necessary for the majority of state institutions to submit requisitions based on estimates of drug requirements for three to six months. The turnover of doctors and patients,



*Buyers. Left to right, seated: H. E. Morrisett; E. O. Rodes; Mrs. Alda L. Booker; R. C. Eaton. Standing: H. D. Fox; Peyton Grymes; J. R. Blanton; R. J. Lafoon; Roy T. Scott, Purchase Manager.*

coupled with frequent changes in the drug industry, produced obsolescence and unbalanced stocks which caused a real problem for the institutions.

Use of open-end contracts based on total estimated requirements of all institutions for six to twelve months have resulted in a substantial saving of

*Printing Section. Left to right, standing: Mrs. Dorris S. New; Mrs. Anita P. Deibert; Mrs. Rena G. Williams; Miss Ellie W. Broome; J. A. Padgett. Seated: W. E. Butler.*



money. Under the plan, however, direct purchases still may be made by the institutions in quantities commensurate with current rate of use. With the close co-operation of the department's inventory specialist, obsolescence and surplus stock can be almost eliminated.

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*(Continued on page 9)*

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*A meeting of the National Institute of Governmental Purchasing, held in Boston, Massachusetts. G. Lloyd Nunnally (at head of table, right photo) was the featured Breakfast Speaker.*



pital packs" available from manufacturers, savings up to 25 per cent have been effected on many drugs, Mr. Nunnally noted.

Thus far, about 40 open-end contracts have been established for direct order by using agencies. With smaller stocks in the institutions, space requirements are kept to a minimum, fresh supplies of drugs are assured, and changes in patient treatment desired by the professional staffs are more readily accomplished.

A committee composed of representatives of the medical and pharmaceutical staffs of state institutions is being formed to improve communications between agencies and to establish acceptable standards for hospital and medical items.

Purchasing in the present-day market, Mr. Nunnally says, is a highly specialized and competitive field which requires constant attention. One of the ways he keeps abreast of developments is through membership in various purchasing agents' associations. Mr. Nunnally is vice president of the Old Dominion Purchasing Agents Association, a board member of the National Institute of Governmental Purchasing, chairman of the public relations committee for the Fifth District of the National Association of Purchasing Agents, and a member of the National Association of State Purchasing Officials.

A better understanding of the overall program of Mr. Nunnally's department can be obtained from the following summary of the activities of its three operating sections:

The administrative services section, supervised by Richard J. Ransone, the department's administrative officer, is subdivided into six sections—inventory, surplus property, procedure and value analyst, storeroom, personnel, and public relations.

An inventory specialist works closely with other agencies and through continuous improvement of inventory control, the amount of surplus property in any agency is kept to a minimum. The

specific duties of the inventory specialist, when working with other agencies, are to aid in: establishing good housekeeping practices, eliminating obsolescence, arranging for the transfer of items between agencies, making recommendations for improving the inventory control systems of the state, and coordinating volume purchases of various commodities.

The functions of the surplus property division are covered in part by Section 2-265 of the Code of Virginia, a portion of which reads as follows: "The Director of the Department of Purchases and Supply shall transfer supplies or equipment from one state department, division, institution or agency to another, and sell surplus supplies or equipment which may accumulate in the possession of any state department, division, institution or agency and pay the proceeds derived therefrom into the State Treasury to the credit of the department, division, institution, or agen-

cy owning the surplus supplies or equipment."

"Monetary returns from the sale of surplus property, which amounted to \$744,694.08 from July 1, 1958, to May 11, 1959, actually do not represent all of the savings enjoyed by the State in the disposal of the property," Mr. Nunnally said.

"When property is declared surplus by one agency, all other state agencies are advised immediately and are given an opportunity to procure any of the items needed. Therefore, much of the property declared surplus by one agency is transferred to another. In such instances, the receiving agency gets a much needed piece of equipment at a considerable saving in price.

"When property is transferred from one agency to another, it represents a minimum saving of 75 per cent to the receiving agency. This is the difference between the actual transfer cost and the

*(Continued on page 31)*

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# NORTH CAROLINA'S HIGHWAYS



## TAR HEEL STATE BOASTS ONE OF AMERICA'S MOST MODERN SYSTEMS

by SAM BEARD

**A** CIVIL WAR HISTORIAN once remarked, "I am satisfied North Carolina was spared major destruction from the invasion of Sherman because the roads were so bad he couldn't get through."

What may have been true in 1865 is certainly not the case today, for the Tar Heel State boasts one of the most modern highway systems in America; what's more—she is now engaged in the biggest road-building program in history. If the legions of Sherman rolled today, they would find road conditions no obstacle in any quarter.

Four-laned expressways with access control design are opening up in many sections. Bypasses skirt the downtown business districts of scores of cities and already five sections of the ultra-modern Interstate System are under traffic, bringing to motorists a kind of safety and driving ease unheard of even a scant five years ago.

Records of the U.S. Bureau of Public Roads show that North Carolina vies with only one other State for top honors in Interstate construction progress.

"Black-top" is familiar to hundreds of thousands of rural residents too, for North Carolina is generously landscaped with hard-surfaced Secondary Roads which reach out into the countryside in all directions from cities and towns.

The story of North Carolina roads is a story of realization and determination

on the part of her people—realization that progress in almost every field of modern endeavor depends on an adequate network of transportation facilities—determination to have such a network insofar as she is able financially to buy it.

With more than 70,000 miles on its System, North Carolina's Highway Commission is responsible for more public roads than any similar road-governing body in the Nation. Yet, with this great mileage, only 87 miles of US or NC numbered routes remain unpaved out of a Primary System which measures more than 12,000 miles in length. Practically all Secondary Roads,

ED. NOTE: In the spirit of neighborliness that exists between Virginia and its sister state to the south, VIRGINIA RECORD presents the story of the growth and development of the North Carolina highway system.

The writer, Mr. Sam Beard, a noted newspaperman and author, is Director of Public Information for the North Carolina Highway Commission.

and the State has 58,000 miles of them, which serve more than 100 vehicles on the average day are paved and the 50 vehicle per day roads are now rated for paving on a State-wide priority system which assures that the most important roads in each County will be paved first.

To those closest to it, the highway program in North Carolina is sometimes staggering in its proportions. Currently budgeting slightly over \$200 millions annually, expenditures exceed \$80,000 for each working hour. During 1958 some 39 million man hours went

*Regular monthly meetings of the North Carolina State Highway Commission are busy work periods. Here, Highway Director W. F. Babcock (fourth from left) checks off another item on the Commission's busy agenda. Left to right are Commissioner Ralph Howland of Elkin, Assistant Highway Director C. W. Lee, Research Project Director Charles R. McCullers, Babcock, Commission Secretary Elizabeth Hughes, Commission Chairman J. Melville Broughton, Jr. of Raleigh, Commissioner Fletcher Gregory, Jr. of Weldon, the late Commissioner E. L. White of Wilmington, Commissioner James Mason of Laurinburg. In the foreground are Highway Commission Controller Ervin Dixon and Chief Engineer W. H. Rogers, Jr.*



into administering the road program and working the highways. Amassing this total were some 9,500 permanent and temporary employees and 7,000 prisoners who are utilized in routine maintenance.

The Highway Commission, in terms of money and manpower, is the State's largest business—public or private—and certainly one of its most important. However, North Carolina didn't get its reputation as the "Good Roads State" by compiling impressive statistics. It took a good measure of hard work and hundreds of millions in public funds.

It was in 1921 that Tar Heels ventured into the road-building business in earnest. The motor vehicle, though then a fledgling, showed signs of becoming a permanent and dominant influence and North Carolina roads, the majority of them mud or at best rock, couldn't take the strain. Years before, a Good Roads Association had been formed and leading citizens were pumping hard for a grid of paved highways connecting major cities and the 100 County Seats.

A \$50,000,000 bond issue was proposed, the bill gained Legislative approval and, later, North Staters trooped to the polls to register their overwhelming agreement.

Almost without realizing it, North Carolina was pioneering, for up to that time no other State had accepted such a rigorous public responsibility for highways; but it was only the beginning. With the bond issue came a new State Highway Commission and, at its head a Wake County native named Frank Page. Governor Walter Bickett who appointed Page was once quoted as saying, "I am not at all sure but it's that appointment more than any other one thing that will entitle me to a place in the grateful memory of the people of this State." Bickett was right, for Frank Page, tabbed the "Granddaddy" of the North Carolina Highway Commission, gave the State more than 6,000 miles of hard-surfaced primary roads in a five year period. Many of those highways, though widened and resurfaced, stand today as evidence of his resourcefulness and determination.

Subsequent bond issues in the '20s pumped an additional \$65,000,000 into the highway program but both debts have long since been retired and most North Carolinians who remember the era will tell you, it wasn't an expense but an investment that paid handsome dividends.

It was a \$200,000,000 bond issue in 1949 that brought farmers out of the mud and set their acres next to "black top". Again it was a public referendum

that did the trick as North Carolinians voted themselves an extra cent per gallon gasoline tax to pay the freight. An unprecedented paving program began in 1950 that spread asphalt over 14,500 miles of Secondary Roads. The gas tax hike brings in around \$13,000,000 annually and some \$63,000,000 has already been retired with the total issue scheduled for retirement at the end of the 1969-1970 fiscal year.

Most of the paving was done by Highway Employees—called "State Force" and, though maintenance costs soared to new highs, the general consensus of opinion around North Carolina is that the investment was well worth while.

While Tar Heels are justly proud of their reputation for "Good Roads" thousands will tell you in a moment that they're far from being smugly satisfied. In 29 Public Hearings held by the Highway Commission in the past 24 months in widely scattered areas of the State, the seven-member board heard appeals for road improvements that would cost well over a billion dollars.

Cities and towns that once fought by-passes for fear that they would dry up the town's business and leave it to wither on the vine were back urging construction of additional bypass routes. City officials whose municipalities are bursting at the seams in a new and vigorous trend toward urbanization sought help in unsnarling traffic congestion on major arteries. Others want new routes to open up areas to an industrialization program that has been sparked by Governor Luther H. Hodges as a means of perking up a lagging agricultural economy.

Between July 1, 1957 and the present, the seven men of the Commission along with top administrative and engineering personnel, have been beating the pavement in a series of hearings which has taken them literally from the Tennessee line to the Atlantic Ocean. The natural question arises as to why these Commissioners, serving without pay and with only a meagre expense account, should cover the State in frequent meetings, fully aware of the fact that available funds won't stretch far enough to cover every justified highway need.

The answer lies in a story worth the telling and it dates way back to 1921 when, with the \$50,000,000 bond issue as its tool, the Highway Commission assumed State-wide significance.

According to the original Statute defining authority and responsibilities of Highway Commissioners, these gubernatorial appointees were to care for highway needs in all areas of the State

and allot from available funds sums sufficient to accomplish road improvements without regard to political subdivisions or arbitrary engineering divisions of the Commission. Traditionally North Carolina has been separated into engineering divisions of anywhere from eight to twelve Counties and a Division Engineer and his staff have been assigned to road construction and maintenance within the area. These Divisions have varied in number from as few as five in the 1930s to as many as fourteen at the present time.

As the administrative Divisions have varied so have the number of Commissioners, since it has been a custom to have one Commissioner for each Division. That is—it was a custom until 1957 when a significant re-organization of the Highway Commission abolished the Division Commissioner in favor of seven Commissioners, appointed at large to serve the State at large.

The re-organization move really started in 1955; behind it and giving it impetus was Governor Luther H. Hodges, himself a former Highway Commissioner. Proponents of the re-organization directed their attack on the Commission organization itself and not on individual Commissioners. They argued that the fourteen Commissioners devoted the lion's share of their time to local road problems and that, though this were natural, it had the effect of creating fourteen individual Highway Commissions at the expense of highway continuity that actually transcended individual Divisions.

While it was admitted that scores of distinguished citizens had served as Division Commissioners and had done their job well, it was said they were working under a framework that tended to divide rather than unite the State's road program. Funds were allocated to the various Divisions on the basis of area, population and mileage of roads and, since these factors changed but little from year to year, approximately the same amount was going into each Division each year. Once the yearly allocation was made, a Division Commissioner could, if he wished, designate the roads to be improved.

Some of the Divisions were looking for places to put their relatively large apportionments while others were pinching pennies to make small allowances cover a host of road needs. What was needed, proponents of reform said, was a Highway Commission to serve all the people and allot funds and program work based on comparative need—area for area, county by county.

A Highway Study Commission was  
(Continued on page 13)



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*This scene shows grade work on Interstate Route 95 in the vicinity of Dunn, N. C. The finished roadway will contain two 24 foot divided lanes separated by a 36 foot median strip.*



*This aerial view of a 16.3 project clearly shows the good sight distance afforded by the high standards of interstate design. This project is located between Greensboro and Kernersville.*

(from page 11)

authorized by the 1955 General Assembly and to this group Governor Hodges appointed five Legislators and two private citizens; the Commission was chaired by Senator Claude Currie of Durham. The Study Commission began a tour of the fourteen Highway Divisions, talked with Commissioners and hundreds of employees and civic leaders. It spent a good deal of time in Raleigh visiting the Chairman of the Highway Commission who was both head of the Commission and chief administrative officer of the engineering and field forces of the Highway Department.

On December 18, 1956, the Study Commission turned over a 36 page report with recommendations for change. Four months later the 1957 General Assembly adopted practically every suggestion presented to it by the Governor and the Study Commission. The changes envisioned a streamlining of the Commission and a most important separation of policy-making authority and administrative responsibilities.

As adopted by the Legislature, the Commission was reduced from fourteen to seven members, to be appointed to staggered two and four year terms by the Governor as representatives of the entire State. One of the seven was to be appointed as Chairman, and Commissioner duties were restricted to policy making decisions only—decisions which would be administered uniformly in all sections of the State.

Serving under the seven member Board would be a professional transportation engineer who would carry out Commission policy as Director of Highways. What thousands of municipalities had given to City government was now to be given the Highway Commission, for the Commission would act as a kind of City Council while the Director's job would approximate that of a trained City Manager.

Taking office on July 1 of 1957, the new Commission and Director of Highways moved at a time when the Interstate Highway rush was on; funds for a heavy construction program were

available but plans for the new highways, completed plans that is, were scarce around the five story Highway Building in Raleigh.

None of the former Commissioners was reappointed, for Governor Hodges reasoned that a new system needed new faces. As Chairman the Governor appointed Raleigh attorney and distinguished elder statesman William Joyner. From the west he tabbed Asheville publisher Robert Bunnelle; from the Piedmont came textile executive Ralph Howland of Elkin, and long-time Cabarrus County Board of Commission chairman J. Lee White. Down East, Weldon banker Fletcher Gregory, Jr. was named along with E. L. White, former Mayor and one of Wilmington's most distinguished citizens.

Ill health forced Chairman Joyner to resign from the Commission a few months later and death took Commissioner E. L. White, in late June of this year. Replacing Joyner as Chairman was J. Melville Broughton, Jr., of Raleigh, a former member of the Hospitals Board of Control, a distinguished lawyer and son of North Carolina's World War II Governor, the late J. Melville Broughton. Commissioner White's successor has not yet been named.

As Director of Highways, the Commission picked a professor of transportation engineering at Raleigh's N.C. State College, W. F. Babcock. With an M.I.T. degree in transportation engineering and with sixteen years of teaching behind him, Babcock was far more than an academician. He had formed a private consulting firm while at State and had designed major thoroughfare plans for scores of cities and towns in North Carolina. What's more he had worked closely with the Highway Commission for years and had taught many of the Civil and Transportation engineering students who went with the Commission after their graduation . . . he was familiar with the highway scene in North Carolina.

The Commission and the Director had their work cut out for them. The Legislature had directed that each of

the State's 100 Counties was to have its own yearly Secondary Road plan. Once drawn up by the engineers it was to be presented to the various Boards of County Commissioners for advice and recommendations. Once approved, it was to be published as the schedule of road work for the County for the fiscal year and a public accounting of all road funds spent in each County was to be made at the end of the fiscal year.

Early in the re-organization it was determined that a special Secondary Road Department was needed to handle the special problems of the 58,000 mile Secondary System, determine individual County needs and prepare a priority system for paving roads in accordance with their relative importance. Heading the department would be a Secondary Roads Officer.

For the job the Commission picked former Sanford Mayor and a member of the 1955 Study Commission Harold Makepeace. Makepeace and his assistants, working closely with Director Babcock, the Commission and a good many County Commissioners, designed a points-priority program for paving Secondary Roads which served an average of 50 vehicles or more daily.

As it emerged, the Priority program rated all such roads in each of the State's 100 Counties on the basis of three characteristics—land use, public service and traffic count. Every occupied dwelling on a Secondary Road gave the road a point, and additional points were given for churches, public buildings, commercial establishments, recreational facilities and others. Under public service characteristics a road got additional points for every school bus round trip. If the road was used for mail deliveries or as a commercial route the rating sheet reflected such use. And, of course, average annual traffic count was included—a point for every counted vehicle.

With the rating sheets in hand, Division Engineers started the most comprehensive Secondary Road study which had ever been conducted in North Carolina. Every County's 50 vehicle

(Continued on page 32)

# THE VIRGINIA DEPARTMENT OF HIGHWAYS

## Use of New Electronic Equipment Relegates

### Old-time Surveying Methods to the Limbo!

by G. WATSON JAMES, JR.

**W**ITH modern electronic theories, plus radar-type instruments, State Highway Engineers are fast relegating old-time rod-and-chain surveying methods to the limbo.

Dragging a chain mile after mile, packing a heavy transit and level to establish a reconnaissance line, laboriously taking level readings right and left of this line at measured intervals, plus measuring the distance to where each was made for elevation contours—just to cite one old survey technique once employed to build highways in Virginia . . . well, it's not being done any more.

If you circulate around the headquarters of the Department of Highways, you will hear of the labor-saving and construction-cost saving workings of the "Tellurometer," the "Kelsh Plotter," and "Walkie-Talkie radios."

The more their operations are explained by A. K. Hunsberger, Assistant Location and Design Engineer, and Fred B. Bales, in charge of the aerial section of the Department, the more amazing they seem.

Modern electronic theories plus new radar-type instruments have made possible a method of measuring of great speed and accuracy. This revolutionary procedure is used to establish the numerous ground control points needed in the construction of the 100-mile interstate highway system in Virginia. The result will be a saving of millions of dollars and months of labor.

The system, called "Tellurometer," from the Greek words meaning "earth" and "measurement," is based on the transmission of electronic waves from one point to another. A transmitter at one station sends microwaves to a receiver at another station. The time it takes the waves to reach the receiver and return is easily read at the transmitter end in micro-milleseconds. This, in turn, is easily translated into miles, feet, and inches. The whole procedure takes only 40 minutes, even to measure

the distance between points 40 miles apart.

There can be error of no more than 11 inches in 40 miles. This is accuracy far beyond that required for highway location work. Other advantages are that operators do not have to see each other, but can be miles apart, communicating freely by two-way radiophone, and that the instruments can be used in any kind of weather without affecting accuracy.

Both transmitter and receiver are small, compact units easily carried by a two-man team. One man is needed at each end to flip the switches on the instruments and record readings.

The power plant is an ordinary automobile battery. Total weight of all the Tellurometer components is 85 pounds.

So far, Virginia engineers have used the Tellurometer to establish 265 horizontal control markers on 725 linear miles of highway at a cost of \$284.00 per linear mile, and 798 vertical control markers on 431 linear miles of highway at a cost of \$86.96 per linear mile. It is expected to cut the cost from an estimated \$750 per linear mile to about \$400 per linear mile, and to slash the time required to a fraction. Thus, projects will be located and engineered months earlier for awarding of contracts.

Laymen may query, "If the operators don't have to see each other, how does the transmitter operator know in what direction to point his instrument to communicate with the unseen operator of the receiving instrument?" To explain, the unseen control point has already been established. When the receiving operator arrives at the unseen control point known as the "Slave Station" he communicates via two-way radio with the "Tellurometer" operator (see illustration) and then sends out electrical impulses from his instrument covering an arc of some 60 degrees by which means the transmitting operator can adjust his instrument to point in a



At the "Slave Station," an operator converses freely across the miles with the "Tellurometer" engineer. This photo, taken in Virginia, courtesy of Highway Information Services, Washington, D. C.

straight line to the "Slave Station."

After this "marvel" was explained by Mr. Hunsberger, the writer was conducted by Harry L. Smith, Public Relations Director, to a quonset-hut building below headquarters where another "marvel" was in operation.

There, Mr. Bales explained the operation of a time and money-saving device which uses the principle of the Stereoscope. This is the Kelsh Plotter, which a trained operator makes transform aerial photographs of ground areas into three-dimensional pictures, read elevation points and put what it reads on a drawing board.

Contour maps and maps showing terrain cross sections produced on the Plotter are used to locate the best lines for new highways and to compute quantities of earth to be moved.

Mr. Bales, in charge of the aerial survey section, estimates that the Plotters save about one-third in man-hours for survey work.

A Plotter consists of two large slide projectors mounted above a tracing table. One projector lens is covered with a red filter, the other with a blue-green filter. Through each is projected a glass slide of an aerial photograph, showing the same land area, but from a slightly different angle. The two views are merged into a single picture by focusing the twin projectors onto a white, flat, circular viewing screen, about three inches in diameter, called a platen.

The platen, which can be adjusted vertically, is operated by a person wearing 3-D glasses who moves it up and down until a single image appears in three-dimensional relief.

The picture alone, however, wouldn't be of much use unless transformed into actual variations in ground level. This vital job, performed by the Plotter, determines ground elevations to within about three inches. In the platen's center is a tiny, luminous dot called a "floating mark," which is

formed by light from a small bulb beneath the platen. This, when viewed by an operator using 3-D glasses, appears as two dots. By adjusting the platen up or down until the twin dots merge, the operator can determine the exact height of the ground in relation to sea level. The Plotter also takes over part of the job of drawing elevation lines onto the map sheet for, attached beneath the platen, under the floating mark is a pencil that traces a contour map as the operator guides the platen over any portion of the projected image.

Before the Plotter can do its work, certain known factors must be supplied by the operator. He must know, for instance, the exact geographic position and ground elevation of strategic points that can be identified from aerial photographs.

Four of the Kelsh Plotters, costing about \$6,700 each, are being used by the Highway Department to map locations for future roads—particularly those in the interstate system. Most aerial photography work is done in the late fall and early spring to eliminate errors caused by forested areas.

Further explanation of this "magic" instrument: the elevation above sea level of each control point on the terrain, photographed from the air, has been established and the control points visible. Assume that a control point is 1,000 feet above sea level and the operator wishes to trace "contour 1000" as it meanders through the terrain. He adjusts the platen to elevation 1000, and as long as the twin dots remain merged as one, he is at elevation 1000 and can trace that contour on the map sheet (see photograph). The same holds true if he wishes to plot contour 995 and all others. And, because of the three-dimensional view he has of the terrain, he can determine any physical obstruction through which the contour passes.

How is the scale of the aerial picture determined? For example, if the aerial photographer is flying at 6,000 feet and has a six inch focal length camera, the scale of the three-dimensional picture will be one inch equals 1,000 feet, etc. The photo scale is a direct ratio between camera lens focal length and flight height.

But we are not at the end of these labor saving "gadgets". There must be a permanent master map of the terrains under study and sometimes duplicates of them, which formerly entailed plotting the contours and physical conditions on a map sheet (linen-backed and subject to shrinking), then making a tracing of the map for duplicates.

Now, time has been shortened by means of a scribe coat sheet.

This scribe coat sheet has a very thin coating on one side, but is translucent. It is placed on a "light-table" over the map made by the Kelsh Plotter and with a sharp pointed scribe instrument the contours on the original map are etched out on the scribe coat sheet. The map resulting from this process is a photographic negative from which can be printed a permanent map on material called "Cronaflex", not effected by moisture and non-shrinkable.

Other time-saving, labor-saving and expense-cutting "gadgets" are the Walkie-talkie radios used by the Department's survey parties in highway location and construction. With the radios, two sections of a survey party can keep in close touch to avoid many delays.

Where long tangents or other features make hand signaling or vocal communication difficult, the radios have been invaluable. They have been especially useful in congested areas where traffic and other obstacles may block the line of sight, and signals nor-

mally used could not be seen.

Highway engineers said they are sure that Walkie-talkies have saved money for the Department for an interchange can be contoured in about half the time ordinarily required.

Two sets of the two-way radios were purchased in 1957 and have proved so successful that 10 sets are now in use.

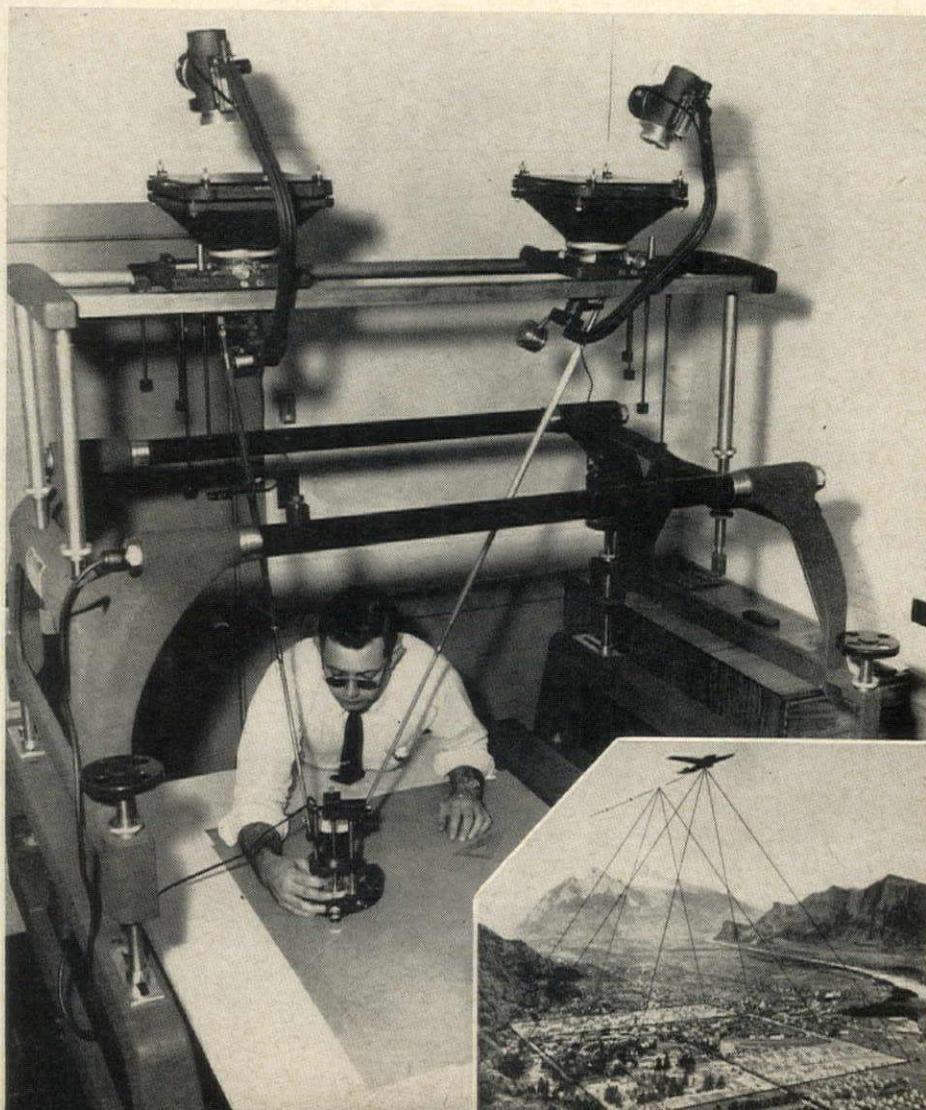
The radios cost \$335 per unit—two to a set—and, as "large area" surveys increase, the Department expects to purchase more.

They have a range of about two miles and operate on the same frequency as the Department's car and base station radios.

We have still barely touched on the Department's use of science to decrease cost and increase safety.

The engineering force is composed of diagnosticians and surgeons, so to speak. A visit with A. W. Maner, Assistant Testing Engineer, or consulting many of his articles published in the *Virginia Highway Magazine* proves this. An example is development of the "De-slicking Mix" to cut down the dangers of skidding. (Please turn the page)

*An operator uses a Kelsh Plotter to prepare contour maps from aerial photographs. The inset shows how photographs are made, with lines illustrating the area covered by two aerial photos of the same location taken from a slightly different angle with a 60 percent overlap. The overlap is the section seen by the operator of the Kelsh Plotter.—Virginia Highway Dept. photo.*



(from preceding page)

In the Valley of Virginia on highways bearing heavier traffic certain limestones used in road surfacing had become polished. In dry weather it was safe, but when wet "dangerously slick," according to Mr. Maner.

After experimentation which produced a satisfactory but very expensive solution, the problem was tackled by Tilton E. Shelburn, Director of Research for the Department and an assistant, Jack A. Dillard at the University of Virginia. They came up with a surfacing material, almost a duplicate of the first but which cost much less.

What did this surface accomplish to

reduce skidding?

Braking tests conducted before the use of "Deslicking Mix" revealed that, on a wet highway, a car driven 40 mph when the brake was applied skidded, in the worst location encountered, 260 feet. Tests made after the "Deslicking Mix" had been applied, showed the skid measurement reduced to about 90 feet.

The graph demonstrates effectiveness of the "Deslicking Mix" on a wet road in reducing the skidding distance at various speeds as compared with a wet highway not "Deslicked." When first used to illustrate a short article by Mr. Maner entitled "I Love My Life—

But," the graph was subtended with the following text which every motorist should digest.

"Suppose you are driving along Route 29 at the legal speed limit of 55 mph. The pavement is considered by all standards to be skidproof. Your tires have good tread. Your brakes are in good condition. It has been raining for about five minutes and the pavement surface is wet. Suddenly 400 feet (or a little more than a city block) ahead you see a truck blocking the road. Can you stop in time to avoid a collision?

"If the road is level and if you skid in a straight line you should be able to

## IF EVERYONE

If every one who drives a car  
could lie a month in bed,  
With broken bones and stitched up  
wounds, or fractured head,  
And there endure the agonies that  
many people do,  
They'd never need preach safety  
to me or you.

If every one could stand beside the  
bed of some close friend,  
And hear the doctor say "No Hope"  
before that fatal end,  
And see him there unconscious,  
never knowing what took place,  
The laws and rules of traffic I'm sure  
we'd soon embrace.

If every one could meet the wife and  
children left behind.  
And step into the darkened home  
where once the sunlight shined,  
And look upon the "vacant chair"  
where Daddy used to sit,  
I'm sure each reckless driver would  
be forced to think a bit.

If every one who takes the wheel  
would say a little prayer,  
And keep in mind those in the car  
depend upon his care,  
And make a vow and pledge himself  
to never take a chance,  
The great crusade for safety would  
suddenly then advance.

—by John Clark

Reprinted from May 5th issue, *Transport Topics*

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stop about 40 feet short of a funeral.

"Now suppose all conditions are the same except that the pavement is considered to be slick. Can you stop in time?"

"If the road is level and if you skid in a straight line you will be moving about 35 mph when you crash into the truck. With the road unobstructed you would travel a total distance of about 595 feet, or the length of two football fields, before you could stop.

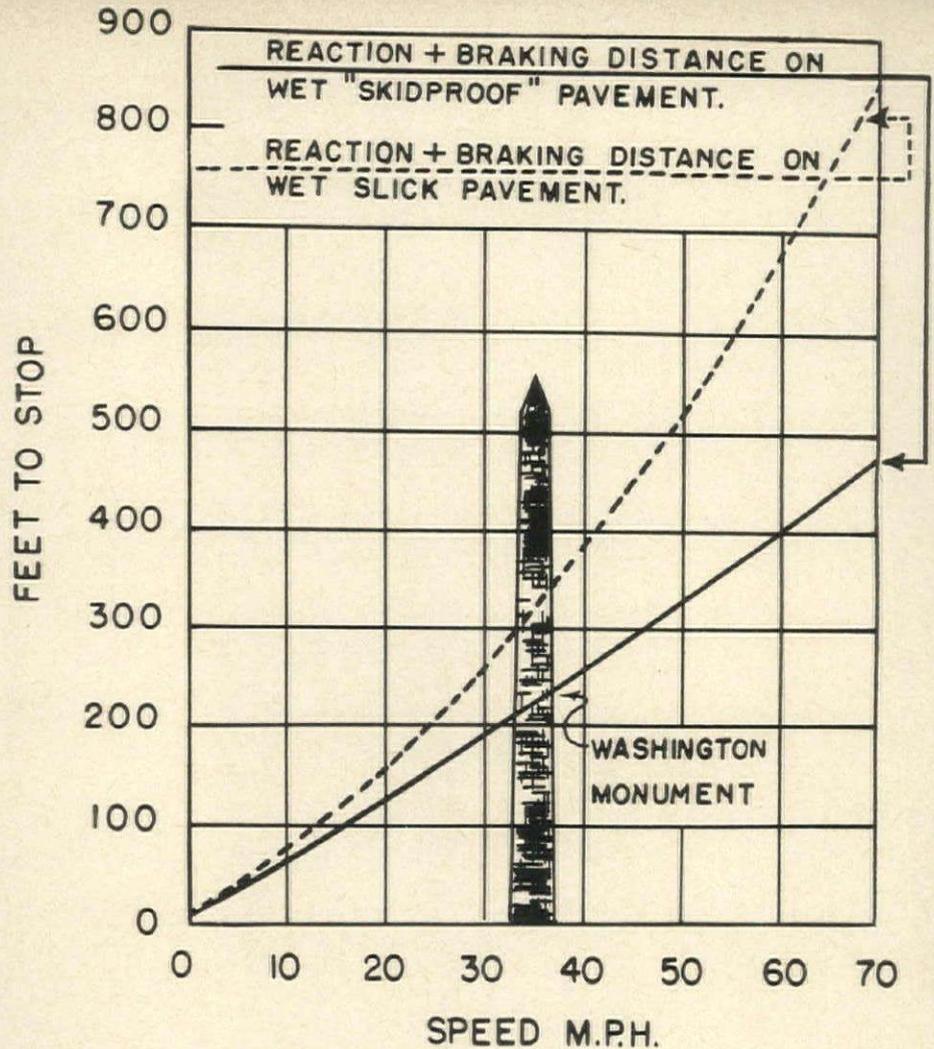
"The graph shows the distance covered during the time it takes for you to realize you have to stop plus braking distance, or total stopping distance from speeds up to 70 mph. The skidproof pavement shown on the graph is the average of many tests on all types of Virginia pavements. The slick pavement shown is for a very slick condition (bleeding asphalt and polished aggregate).

"This graph points out some startling facts that too many of us forget or are not aware of when we are driving an automobile. At 70 mph on the slick wet pavement it would take almost three city blocks to stop. You would have to drive at 48 mph on the slick pavement in order to be able to stop in the same distance you can stop from 70 mph on the skidproof pavement. An increase in speed of from 55 mph to 60 mph, only 5 mph, would mean an increase of over 80 feet in stopping distance on the slick pavement.

"It is sometimes difficult to look at a pavement and tell whether or not it is slick. The safest thing for a driver to do is to reduce speed to 45 mph or less whenever the road surface is wet."

"The Soils Lab" is another example of the Department's scientific program. As your physician must be fully informed through many tests before making a diagnosis, so the modern highway engineer must know what is hidden beneath the terrain.

From a modest beginning in 1936 the Department's "Soils Lab" has grown from one engineer and two project inspectors (who secured the testing ma-



terial with picks, shovels and post-hole augers) to 14 materials engineers and technicians who work with modern sampling and testing equipment.

Here is an outline by Mr. Maner of the scope of the "Lab's" operations:

"The soils laboratory makes all pave-

ment design recommendations for primary road projects. It tests materials for use in embankments, sub-grades, and bases, determines where subsurface drainage is needed, and makes recommendations for accomplishing the

(Continued on page 38)

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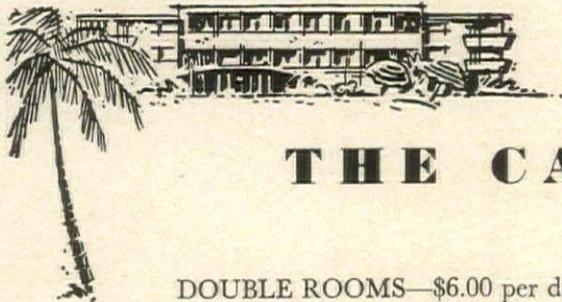
*Gustin  
Gardens*

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# Garden Gossip

## Section

Mrs. Gerald J. Pierce, Editor  
Phone AT 8-0202, 7700 Hillview Ave., Richmond 29, Va.



Colonial Studio

THE NEW LOOK, a class calling for the emphasis on the modern or contemporary feeling, had the above entry by Mrs. G. H. Branch of Richmond. The stark contrast between the black and white as well as her bold use of the smooth figure and quill-type chrysanthemums won recognition in the recent show by the Richmond Council of Garden Clubs.

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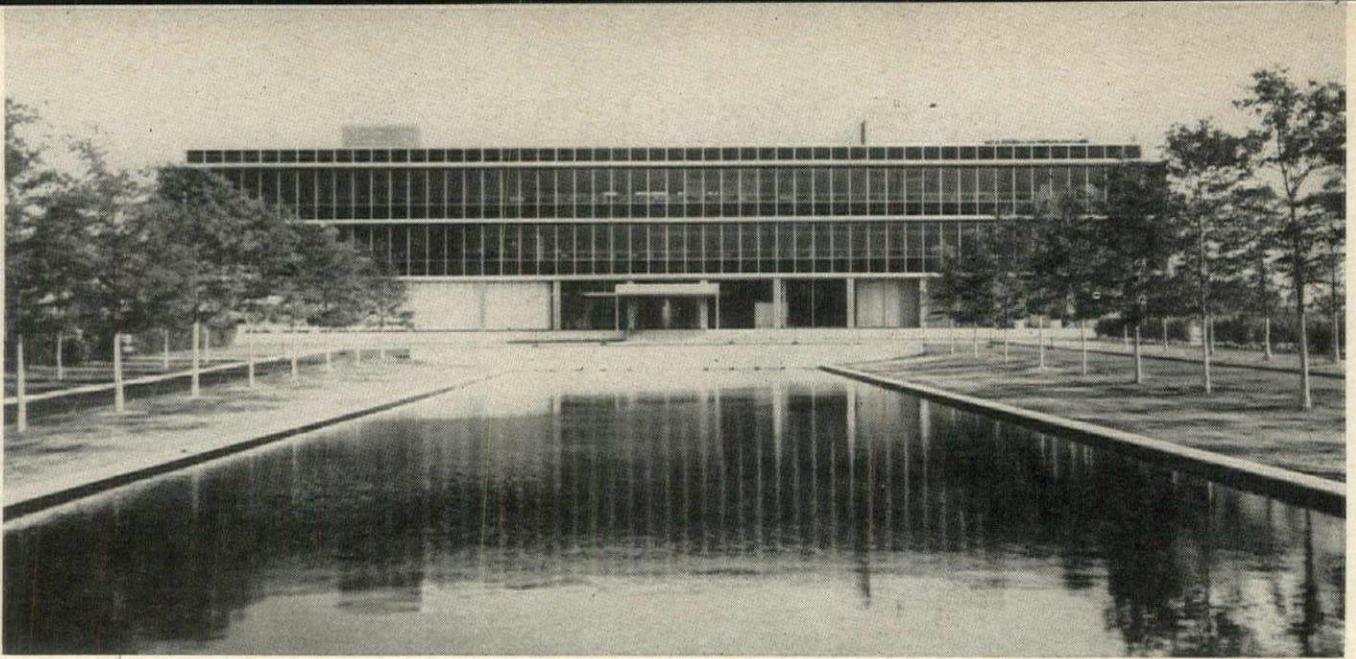
## Garden Clubs Convene

Gathering at the Hotel Roanoke, for three days beginning June 8th, members of the Virginia Federation of Garden Clubs reviewed the accomplishments of the previous year and brought an extraordinary administration to a close. Reports showed it had been a unusually long administration of three years in order to arrange the Federation year to coincide with that of its national affiliate, the National Council of State Garden Clubs, Inc., and a year of many "firsts"—the first year of the second quarter of a century for Federation membership to devote its time and energies to gardening; the organization and presentation of the first of four courses of the newly established Landscape Design School, accredited by National Council; the reorganization of the state districts into six rather than four districts, a recognition of the growth of the garden club movement; the provision for the establishment of a council of accredited judges in each district and the preliminaries taken for the eventual organization of a Federation publication. To these "firsts", Mrs. James H. Donohue, Jr., retiring president, pointed with pride in speaking to the 414 registered delegates.

The extent of the influence of organized gardeners through Virginia wove a strong pattern throughout the condensed reports of the district presidents. What garden clubs are doing for their communities in garden therapy in many institutions throughout Virginia and in civic beautification made an impressive picture of hard work and splendid results. To quote from Mrs. E. C. Rankin in her report as president of Southwest District:

"Of course being a garden club member, you have improved your own home grounds and learned to appreciate nature and its beauty a little more, but besides this, you have made parks, school grounds, hospital grounds and other public places more beautiful for everyone. When you put together in one report these things, it makes a very impressive list, for instance: Esso stations throughout Southwest Virginia; trees and shrubs along Route 297; Y.W.C.A. yard and Balbo Park in Danville; Fries Wayside; Firehouse grounds in Fincastle; Route 460 and the school grounds in Thaxton; City park in Norton; Mercy House in Salem; Cemetery, Main St., and elementary school at Blacksburg; the negro school in Bassett;

(Please turn to page 22)



THE  
**REYNOLDS**  
**BUILDING — ITS**  
**LANDSCAPING**

**T**HE MULTI-MILLION dollar home office building of the Reynolds Metals Company—an aluminum showcase in a Virginia garden setting—dominates the rise on which it is located as one leaves the Old Dominion Capitol on the route to Charlottesville. From the exterior, almost everything that can be seen of the building is either aluminum or glass—enhanced by the extensive landscaping, just now getting established

and beginning to seem as though it belongs to the building.

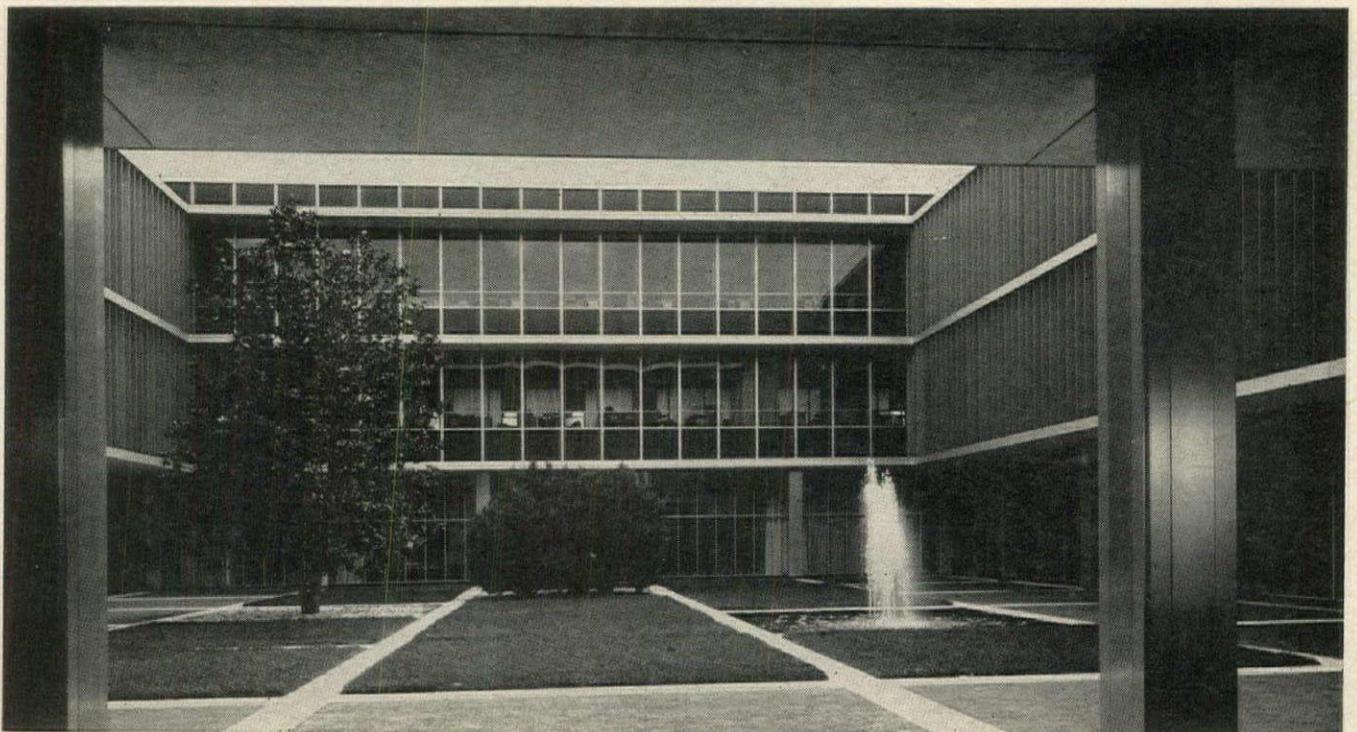
The general landscaping for the building site is entirely modern and was suggested by the contemporary design of the building itself. Conceived by Charles Gillette of Richmond, the plan emphasizes angular forms in the courtyard, the rectangular reflecting pool opposite the entrance and the square flower beds on the terraces. At the same time, trees, flowers and shrubbery used are representative of the south, and suggestive of a traditional Virginia garden.

On the extreme sides of the property, large plantings of loblolly pines and deciduous trees provide potential screening from future development of the adjoining property and at the rear of the parking areas, more loblolly pines supplement those of adjoining property.

As one drives into the entrance road, a group of large crape myrtles immediately catch the eye and others have been grouped in islands within the parking area to remove the hot starkness from the usual black-top parking lot. The yaupon holly hedge around the two parking lots will in not too many years provide a dense protective screen.

The landscaping contract was one of the largest in the history of Virginia, ranking second in size only to Colonial Williamsburg. The planting includes 304 major deciduous trees, 237 minor deciduous trees, 3,355 shrubs, and 184 conifers—a grand total of 4,180 plants, exclusive of flowers. A Rockville, Maryland nursery, Gustin Gardens, supplied many of the plants, but the one tree most discussed was moved into its position from a spot only three miles away by C. H. Campe of Richmond. The

*The inner court.*



forty-foot magnolia, a magnificent specimen of *Magnolia grandiflora* was placed in the courtyard in the earlier stages on construction and lends the true southern feeling to the courtyard the minute one steps into the building lobby. A leaping fountain adds coolness to the scene, and can be viewed by many of the employees from four sides of the building.

Through the glass walls—tinted gray to resist glare—employees can look out on a 253 foot reflecting pool, bordered by willow oaks, near the main entrance. Mercury arc lights, recessed in the ground, illuminate the trees at night. Many of the shrubs and over 10,000 flowers are to be found on the various terraces adjacent to the building. Red salvia and coleus as well as petunias are used in the arid-summer, for example. The cafeteria and sandwich bar joins an employees' lounge which, in turn, opens onto a resort-like terrace with lounge chairs and sun shades. On the first level terrace, hundreds of *Ilex crenata* Helleri, the delightful low, horizontal growing Japanese holly dominates the planting with other Japanese hollies, Dahoon holly (*Ilex cassine*), Chinese holly (*Ilex cornuta* Burfordi), Japanese cleyera, *Photinia serrulata*, *Gardenia fortuniana* Mystery and *Viburnum Sieboldi*. Flower used on the terraces as well as those used in flower arrangements in the executive offices are raised in the greenhouse on the grounds. In the area of the greenhouse, also the building's service area, a large cutting garden boasts of rows of gladioli, marigolds, chrysanthemums and other summer flowers while adjacent to the cutting garden lie two rows of rooting beds and cold frames. Young mag-



*A terrace.*

nolias will eventually screen the greenhouse from the building. Various plants, in tubs exotic and modern in feeling, are scattered throughout the building and all come from the greenhouse and are cared for by the grounds staff.

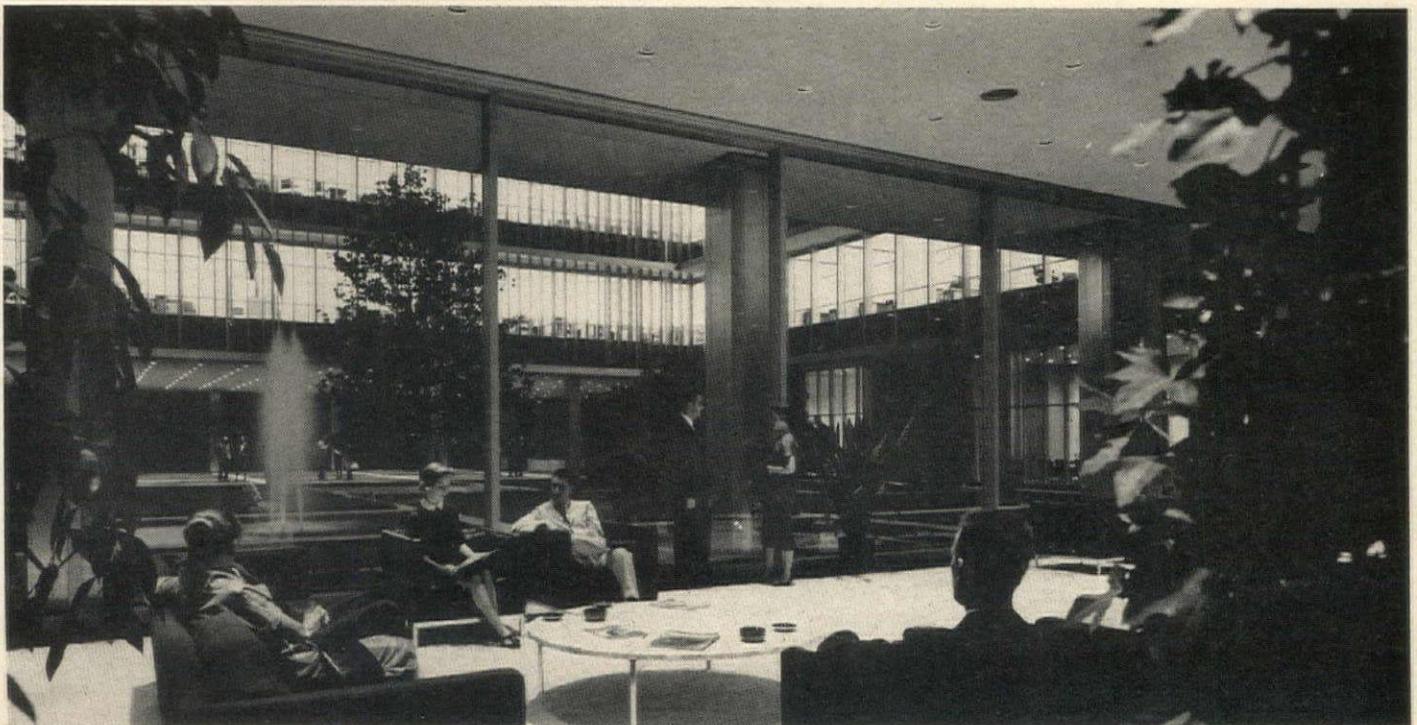
Water for irrigation on the sprawling grounds—160 acres in all—comes from five drilled wells on the property and is pumped into the reflecting pool which serves as a large storage reservoir. Approximately 100,000 gallons of well water are available daily for the lawns, gardens and trees. In addition to the willow oaks used in quantity in the landscape plan, the largest numbers are of tulip tree, sweet gum, American beech, red and sugar maples. Japanese pagoda tree, the winged elm and the Kentucky coffee tree are among the more unusual species chosen. Virginia

natives, the dogwood and the American holly as well as shadblow, eastern redbud, the fringe tree head the list of the smaller trees used with the Sargent and Scheidecker crab apples, the Yoshino cherry and Oriental cherry (*Prunus serrulata* "Kwanzan") adding a foreign flavor and color in the spring. The wide variety of azaleas, the viburnum family and the camellias supplement the color in season, but in such a vast planting, the overall form and general color of green is dominant. Pink and white crape myrtle provide summer color with the various shrubs with berries adding to the pyracantha in the fall. In the manner seen so much at Williamsburg, the *Ilex vomitoria* is used as hedge since it responds so well to clipping and is lovely the year-round.

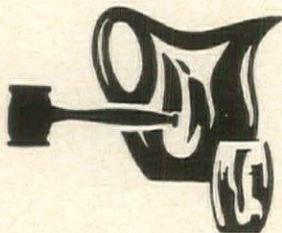
Visible only from the rear of the building is a penthouse terrace atop the aluminum and glass rectangle. Long low plant boxes filled with low growing evergreens edge this terrace and carry the green of the grounds and other plantings to the silvery top for an interesting contrast.

In charge of this vast planting as well as the greenhouse is Mr. J. Andrew Smith. Born in Scotland, Mr. Smith came to this country as a youth and practiced his trade as a gardener in the estates of Long Island. Working up to head gardener on an estate, he came to Reynolds to be the manager of this estate, devoted to the display and utilization of aluminum in all ways in building. But without the beauty of the plantings to enhance this modern, angular building, much of the beauty would be too stark and cold for the traditions of the Old Dominion; instead, it is a building to be admired.

*A view of the inner court from the lobby.*



(Continued from page 19)



entrances to the town and the high school in Pulaski; Cemetery, Medical Center and water tank lot in Gretna; Oakwood Cemetery and Library of Bedford; Court House and Life Saving Headquarters in Bristol; the triangle at Sugar Grove; more than three thousand dollars were spent in the past two years on the American Legion Cemetery in Powell Vally; the State Hospital in Marion; school, church and bank at Elk Creek; highway through Rural Retreat; Orphan's Home at Woodlawn; the high school at Ridgeway; highway 58 entering Galax; Community house lawn in Buchanan; sewer plant at Narrows; Terrace Park in Big Stone Gap; the Marine Armory, Victory Stadium, Roanoke Memorial Hospital, Woodrum Airport, Mary Louise Home, Huff Lane School, Rosalind Hills section and the Buena Vista Recreation Center, all of Roanoke. I am sure that there are many more that have not been reported to me."

Each of the other three presidents could compile a similar list which, added up across the state, shows federated garden clubs are putting their belief in community beautification into positive action. In their own and in others' gardens, members reported planting 10,000 roses as a demonstration of their interest in the statewide project of studying rose culture.

#### Life Members Feted

At a breakfast honoring the forty-five new life members in the Virginia Federation of Garden Clubs, Mrs. Fred Schilling of Afton, Virginia spoke briefly on the nature camp which she directs that has been built as a way to teach young people conservation. Fondly recalling the camp's early days in government buildings with three barrels of equipment the sole possession of the camp staff except for a large dream of what "could be," Mrs. Schilling traced the development of the camp now located in its own buildings, valued at \$69,500 exclusive of a memorial chapel now under construction. With the institution of the life memberships in 1947, with Mrs. James H. Adams of Richmond the first chairman and first life member, proceeds to be devoted to Nature Camp, thirty-eight members

were listed that first year; now 695 are included on the rolls as life members. Of the total building and equipment costs, \$37,000 has come from the life memberships, \$8,558 from gifts of the Federation and \$27,000 from outsiders, clubs and organizations who believe in the value of the unique camp, the only one of its kind in the country. Mrs. Schilling announced the camping sessions, begun on June 21st, were completely filled with waiting lists for practically every one of the four sessions.

#### Over 16,000 Strong

The report of the membership chairman showed an increase of thirty-one clubs on the Federation rolls in the past year, bringing the total membership to 16,257 women—and men, for one of the new clubs in the Green Thumb Garden Club of Staunton, an all-male group, the first to be welcomed into the Virginia Federation.

Special speakers highlighted the convention meals with such items as the latest news of the Permanent Headquarters of the National Council of State Garden Clubs, recently dedicated in St. Louis, from Mrs. C. B. Nettleton, second vice president of National Council, of Covington, Virginia. Member clubs have been working to send contributions to the headquarters building fund and many have achieved the goal of 100%—\$1 per member. The fund drive continues in hopes that all federated clubs will become 100% clubs. Mr. and Mrs. James R. Otto of Ohio presented a flower arrangement lecture and demonstration as a team, emphasizing how unusual effects may be secured from containers, born in the junk yard or attic and transformed to beauty and grace. Having decided it was useless to resist the garden club spirit in this home, Mr. Otto joined his wife, talented in flower arranging, to demonstrate various tricks of wood finishing and handyman manipulation to produce containers for his wife's creations. Dr. Wesley P. Judkins, head of the horticulture department of V.P.I., addressed the closing banquet on his philosophy of the existence of garden clubs and the beautification work they do. Describing today's world as one of special privilege to live in a luxury that allows time and money to plan and create beauty outdoors. Dr. Judkins paid tribute to the work of the garden clubs as he traced the development of interest in horticulture and landscaping in America since the colonial days.

#### New Officers Installed

In between reports and addresses, delegates found a busy schedule of receptions, visits to the displays of club

work as well as flower arrangements, changing of clothes as well as a tea at Miller and Rhoads of Roanoke on their program. A final reception following the formal banquet gave delegates an opportunity to meet the new officers, installed by Mrs. James H. Adams, for a two-year term: Mrs. A. H. Culpepper, of Norfolk, *president*; Mrs. J. W. Inge, Jr. of Blue Ridge, *first vice-president*; Mrs. K. B. Stoner of Eagle Rock, *second vice-president*; Mrs. P. E. Ahalt, Pearisburg, *recording secretary*; Mrs. Howard R. Hook, Jr., Richmond, *treasurer*; and Mrs. J. S. Hardy, Lynchburg, *historian*. The new districts were provided with a president and two directors as follows: *Tidewater*: Mrs. Frank C. Tonkin, Portsmouth, *president*; Mrs. W. H. Stith, Lynnhaven, and Mrs. T. E. Ritter, Portsmouth, *directors*; *Blue Ridge*: Mrs. E. R. Rush, Martinsville, *president*; Mrs. R. Lee Humbert, Blacksburg, and Mrs. Stewart D. Gills, Bedford, *directors*; *Shenandoah*: Mrs. John A. Clem, III, Staunton, *president*; Mrs. Elvis Graves, Syria, and Mrs. Robert J. Rea, Mt. Jackson, *directors*; *Southwest*: Mrs. Creed P. Kelly, Big Stone Gap, *president* with Mrs. B. M. Kiser, Bristol, and Mrs. John Butler, Pulaski, *directors*; *Piedmont*: Mrs. A. B. Schad, *president* with Mrs. C. T. Benjamin and Mrs. William Engard, both of Richmond, *directors*; *South Central*: Mrs. O. O. Utt, Lynchburg, *president*; Mrs. R. L. Wallace, Chase City, and Mrs. Ollie T. Updike, Leesville, *directors*.

In her remarks following her installation as the president of the Virginia Federation, Mrs. Culpepper called for even greater emphasis on conservation in her administration, including the conservation of youth through the growth of Nature Camp. Recognizing the constant need for training young people, she also called for more junior garden clubs to be sponsored by the seniors. Service to others, especially through garden therapy, will be emphasized as well.

In planning for 1959-60, delegates ratified actions of the Board of Directors in renewing a \$1,000 horticulture scholarship at V.P.I. to be used as the department felt best and in establishing for the third year a \$100 scholarship for a public school teacher to attend a conservation workshop sponsored by the Virginia Resource Use Educational Council. Money was also appropriated for landscape work to be done at the entrance to the Arboretum at VPI in Blacksburg and for a marker to be placed at the site of the first arboretum

news from the  
gardening world . . . .

GARDEN LOVERS MEET

Gardeners and home owners from throughout Virginia will again convene at VPI this year, August 3-7, for their "Garden Lovers Short Course". The short course, open to anyone interested, includes discussions on landscaping, plant breeding, chemical controls, and diseases and insects of ornamentals. There also will be several workshops, including those on grafting and budding, perennials, small fruits, plant identification and landscaping.

Registration begins at 2 P.M. August 3 with sessions opening the following morning at 8:30. Registration fee of \$2 entitles one to all the lectures, workshops, nature walks, tour of Mabry Mill, swimming in the college pool and fellowship of kindred spirits in gardening for four days. Accommodations are available on the VPI campus for rooms and meals at very reasonable rates and further details and program may be secured from Albert S. Beecher, Department of Horticulture, V.P.I., Blacksburg, Va.

CONSERVATION COURSE

A "natural resource conservation" short course, designed primarily for public school teachers, got underway at VPI, Monday June 15.

Subjects being taught include geology, soils, forestry, and wildlife and will feature classroom and laboratory sessions and field trips. Four and one-half quarter hours credit will be given for satisfactory completion of the course.

Similar short courses are scheduled for Virginia State College, June 29 to July 17, and William and Mary, July 27 to August 14. They are sponsored by the Virginia Resource Use Education Council, and E. W. Mundie, soil conservationist at VPI, is coordinator.

on the Blacksburg campus. Recognizing the long years of encouragement and support given the Federation by Mr. A. G. Smith of the V.P.I. Horticulture Department, a gift was voted him upon the occasion of his retirement. Mr. Smith was director of the Flower Show Schools for many years when the courses were first given in Virginia.

Convention time in 1960 will bring another group together to evaluate the past, plan for the future, with the convention scheduled for the Hotel Chamberlain at Old Point Comfort, May 23-25.

Garden Gossip Section

MRS FRENZEL TO SPEAK  
AT JUDGES MEETING

MRS. PAUL H. FRENZEL of Glendale, California and Bedford County in Virginia speaks at the August meeting of the Virginia Council of Accredited Flower Show Judges at Blacksburg. Mrs. Frenzel's subject "Changing Concepts in Flower Arrangement" will be the featured attraction of the meeting, scheduled for August 4th at 7:30 P.M. in the Commerce Hall.

A lecturer and teacher in the flower show schools, Mrs. Frenzel has recently served the National Council of State Garden Clubs as chairman of the Reading Examination Committee for the Flower Show Schools. She spoke at the recent convention of the national clubs in St. Louis on "New Visions." Her interests in the garden club work have included flower show chairmanships, work on the editorial staff of "Golden Gardens," the California state publication, working on four issues of the garden club sponsored flower arrangement book, "Arrangements on Parade," and most currently, in the field of public relations. At the present time she is serving on the National Council Public Relations Committee and is chairman of



Mrs. Paul Frenzel

Public Relations for the California Garden Clubs.

Preceding Mrs. Frenzel's lecture, judges from all over the state will gather in the VPI Commons for a 6 P.M. dinner for which reservations are being made with Mrs. F. L. Bower, Box 799, Blacksburg; deadline August 1st. Mrs. Robert Little of Roanoke, new president of the judges' group, will preside at the business session at 7:30.



ROSES NEED THOROUGH WATERING IN HOT WEATHER

That roses need watering during the hot months of the year is a recognized fact. What is sometimes forgotten, however, is that they need the right kind of watering—improper watering can do more harm than good.

The secret of watering roses is to be thorough. Merely sprinkling the surface of the ground does little good—the soil should be soaked to a depth of twelve to fifteen inches. The best method is to use a soil soaker or to remove the nozzle from an ordinary garden hose and set the mouth of a board or shingle at the base of the plant or at the end of a row. This will prevent soil erosion around the base. Overhead sprinkling in dry areas, where no summer rainfall is experienced is fine for roses but should never be practiced where the humidity is high.

A good serviceable mulch of peat moss, buckwheat hulls, compost or some well shredded material will reduce the necessity for weeding to a great degree. It also will keep the soil surface cool and protect the weblike root system which grows near the surface.

Good roses will benefit from occasional feeding ( $\frac{1}{4}$  to  $\frac{1}{3}$  of a cup) of commercial plant food during the growing season. Applied at one month intervals, they will help to build better results throughout the summer.

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## WINNERS AT VFCG CONVENTION

With twenty state awards open to senior garden clubs and their members and twelve available to juniors, keen interest in the awards luncheon was the order of the day at the recent convention of the Virginia Federation of Garden Clubs. Beautiful ribbons for flower show achievement went to the Cohee Garden Club of New Market, the Countryside Garden Club of Dunn Loring and the Waynesboro Council of Garden Clubs, each having submitted elaborate scrapbooks to tell the story of their shows as well as having successfully passed the evaluation committee on the floor of the individual show. The Shenandoah Garden Club of Woodstock won special recognition for its Christmas Show.

For superior yearbooks, the Town and Country Garden Club of Blacksburg and the Monument Hills Garden Club of Richmond went home with cash awards. For its increase of eighteen new clubs, Southwest District won the membership increase award while a Gold Ribbon went to the Portsmouth Council of Garden Clubs for having the largest council membership of federated clubs. Special achievement recognition went to the Thomas Jefferson Garden Club for its restoration of the garden of the Poe Shrine and to the Forest Park Garden Club in Norfolk for its civic work.

The President's Landscape Award, a silver trophy, was captured by the Monument Avenue Crest Garden Club of Richmond which has just dedicated a memorial garden adjacent to Westhampton School. Southwest District was honored for its planting of the most roses by the Belle Ullman Award while Tidewater District was winner of the Mrs. William P. Martin Award for the most 100% clubs for the Permanent Home. Scrapbook awards, emphasizing work on birds, garden therapy and club activities found the Monticello Garden Club of Charlottesville, the Trillium Garden Club of Blacksburg, and the Rosalind Hills Garden Club of Roanoke the winners. Recognition for work in garden therapy went to the Linne Garden Club of Bristol and the Willow Lawn Garden Club of Richmond, the latter a several-times winner. Work in the field of radio and television brought special notice to the Grandin Court Garden Club of Roanoke who won the state Mrs. E. Paul Hayes award and the National Council award in that field, giving this club nation-wide honor.

Among the junior gardeners, where



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interest in awards is even more keen than among the seniors, the Lenox Junior Garden Club of Norfolk won a blue ribbon for flower show achievement. Year book awards went to the Dig and Hope Juniors of Richmond with the Lenox Juniors capturing second place. Junior scrapbook winners were the Southampton Juniors of Richmond and the Junior Garden and Bird Club of Woodstock. The Woodstock club also captured the attendance award offered annually. Carol Sue Anthony, a member of the award winning Lenox Junior Garden Club, won the award for being an outstanding junior as well as the Mildred Burgess Award for the best essay on hawks and owls. She was runner-up for the best bird book, first place having been taken by Catherine Jackson of Columbia. Third place in this Jay Donohue Award went to Eloise Belle of Palmyra who also won the first prize in Junior Essay Contest, sponsored by Mrs. Dave Satterfield, Jr.

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appearance of genuine leaded glass fenestration, adding beauty, distinction and value to the home. Extended durability, washing and weathering tests have proved that Decor-Led will remain tightly affixed to the glass for many years and that it adds substantially to the strength of the glass, especially when used on storm and garage doors.

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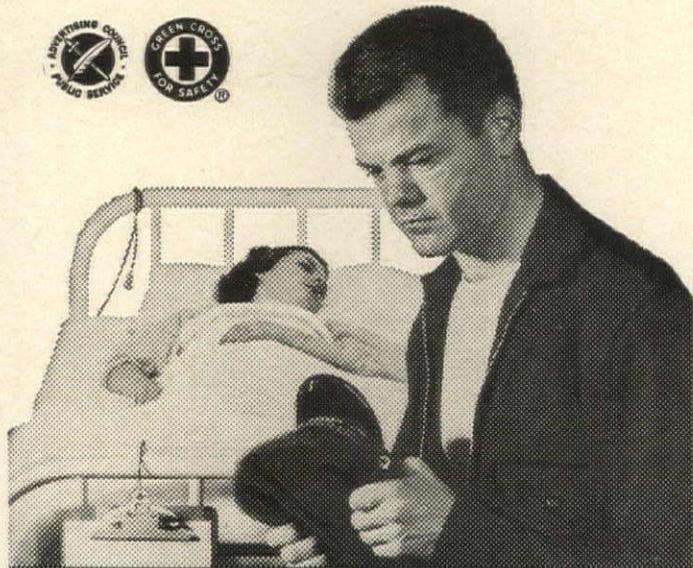
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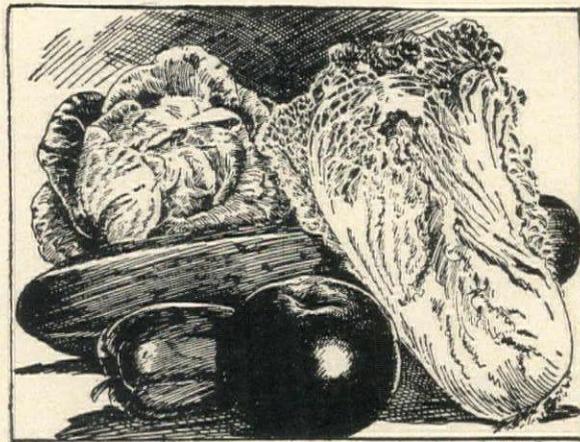
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VIRGINIA RECORD JULY 1959

## FALL CROPS

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### TESTED LATE PLANTING CHART

The following dates have been taken from actual field tests, made by ourselves here in Richmond:

*Latest Safe  
Planting Date*

String Beans, All Varieties .....	Aug. 20
Beets, All Varieties .....	Aug. 15
Swiss Chard .....	Aug. 15
Collards .....	Aug. 10
Smooth Kale .....	Aug. 30
Curled Kale .....	Sept. 15
Lettuce, Wood's Cabbage (head).....	Aug. 15
Lettuce, Grand Rapids (leaf).....	Aug. 20
Mustard, So. Giant Curled .....	Sept. 1
Mustard Spinach .....	Sept. 10
Radish, Winter .....	Aug. 15
Radish, Early .....	Sept. 1
Spinach, New Zealand .....	Aug. 15
Spinach, Bloomsdale .....	Dec. 1
Turnip, Imp. Purple Top White Glove .....	Aug. 30
Turnip, Yellow Aberdeen .....	Aug. 15
Turnip, Seven Top .....	Sept. 15
Chinese Pelsai or Celery Cabbage .....	Aug. 15

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# VIRGINIA BUSINESS REVIEW

by

ROSEWELL PAGE, JR.

**T**HE FARMERS BANK OF BOYDTON is showing good growth this year. At a recent meeting of the Board of Directors it declared, out of its surplus, a 50 per cent stock dividend of \$25,000. This was on the basis of giving the bank's stockholders one new share for each two shares owned. The Board of Directors also passed a resolution offering for sale an additional 1,000 shares of stock at the price of \$50 a share.

The bank now has a capital of \$100,000, a surplus of \$100,000 and approximately \$15,000 in undivided profits. The added capital will enable the bank to serve a larger area of Mecklenburg County more effectively.

\* \* \*

Four major railroads that operate in Virginia have reported net income and operating revenue increases in 1959 for a comparable period in 1958.

Richmond, Fredericksburg and Potomac: Reports net income up from \$648,424 to \$868,782 and operating revenues up from \$7,881,079 to \$8,260,451 in four months.

Atlantic Coast Line: Net income up \$3,264,000 to \$4,722,000 and operating revenue up from \$52,149,000 to \$55,138,000 for four months.

Seaboard Airline: Net income up from \$5,056,652 to \$5,776,707 and gross revenue up from \$52,536,091 to \$55,535,282 in four months.

Norfolk and Western said that profits for the first four months of 1959 totaled \$14,879,689 or \$2.59 per share compared to \$7,790,348 or \$1.33 per share last year.

\* \* \*

Acme Visible Records, Inc., the nation's largest manufacturer of visible record equipment, has opened a district office in the Central National Bank Building in Richmond, according to V. E. Deinlein, vice-president of sales for the Crozet company.

George H. Smith will manage the Richmond operation. Prior to his appointment as district manager, Smith served for two years as dealer representative for Acme with offices in Richmond.

\* \* \*

The First National Bank of Ashland has been given approval by the Comptroller of Currency of the United States Treasury Department to open a branch bank at the village of Montpelier in Hanover County, located on State route 33. The branch will offer banking services to the residents of the southwestern part of Hanover and to sections of Louisa and Goochland Counties, according to L. E. England, president.

\* \* \*

The Atlantic Life Insurance Co. recently moved into its new 2½ million dollar, four-story building on Grace Street between 6th and 7th Streets in

Richmond. This was the former site of the historic and renowned Westmoreland Club. The 160 employees occupy three of the four floors. The company's reception area is on the lowest level of the new structure. The top floor is still to be leased.

\* \* \*

Hennis Freight Lines, Inc., with headquarters in Winston-Salem, N. C., is adding 125 employees to man its new terminal located in the Roanoke area on the 3100 block of Salem Turnpike, N.W.

According to Hennis president, S. H. Mitchell, Roanoke will serve as the

*(Please turn the page)*



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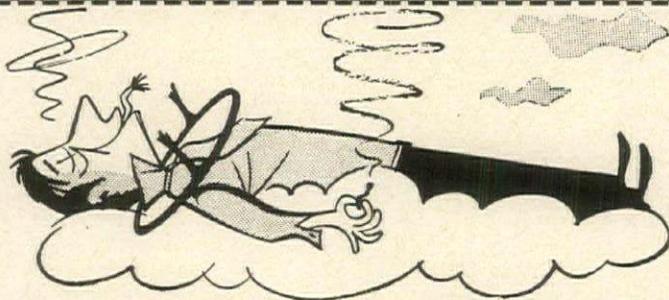
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To light a cigarette,

But then he struck a culvert  
And he hasn't "lighted" yet!

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RICHMOND, VIRGINIA

(from preceding page)

central break point terminal for traffic with origin or destination in Virginia. The company expects to station most of the recently purchased 50 diesel tractors there.

J. M. Turner Co. of Roanoke was the contractor for the two-story office building and maintenance facilities located on a ten-acre plot. Made of brick and cinder block, the 34-door terminal and garage utilizes modern freight handling and equipment servicing methods.

### NAMES IN THE NEWS

**John B. Purcell**, vice-president of First and Merchant's National Bank, Richmond, has been elected president of the Richmond Society of Financial Analysts. Other officers are **George S. Kemp, Jr.**, of Abbott, Proctor & Paine, vice-president and **T. Foster Witt, Jr.**, of Scott & Stringfellow, secretary-treasurer. . . . **M. Lee Payne**, vice-president of the Seaboard Citizens National Bank since 1957, has been elected a director of the National Federal Savings and Loan Association, to succeed the late **Edwin J. Smith**. . . . **Will H. Story**, a Capron merchant, has been named a director of Home Telephone Company of Virginia. The company's head offices are at Chase City. . . . **William S. Board** of Blacksburg has been elected an international

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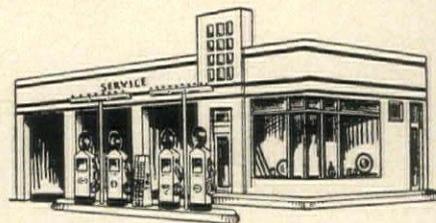
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director by the Virginia Junior Chamber of Commerce. He will attend the world congress of Jaycees in Rio de Janeiro, Brazil in November of this year. . . . Lester Brother's, Inc., of Martinsville announces the appointment as home salesman for the Blacksburg district of **Robert J. Leach** of that city. . . . The Governor has appointed as new members to the Medical College of Virginia board of visitors **Eppa Hunton, IV**, of Richmond, **Dr. Edward Meyers** of Norfolk, **C. Francis Cocke** of Roanoke, and **Fred N. Harrison** of Richmond. . . . **Eustace L. Florance** of Washington has been named assistant

(Continued on page 40)

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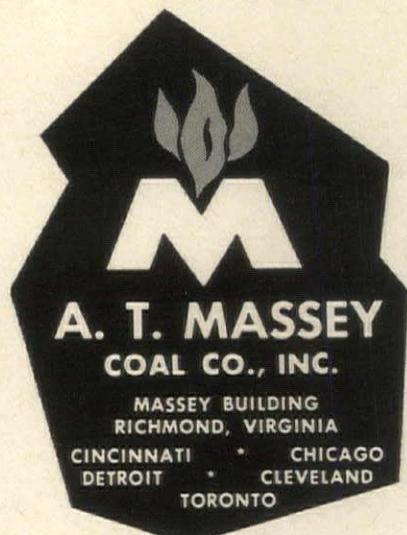
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Melrose 1-0770

**WILMINGTON, DELAWARE**  
Wyman 4-4428

**BALTIMORE, MARYLAND**  
Orleans 5-2766

*L. T. MONKS, Vice President*

## Purchases & Supply

(from page 9)

price of the new item."

Surplus property, which is not needed by one agency is sold to the public in a manner deemed best and most profitable for the State. The sale procedure is determined by such factors as location, total value, number of pieces and kind of commodity. After these factors are considered, the sale is made by competitive sealed bids, negotiated contracts, or at public auctions. When sold at public auction, the contract for the auction is obtained through sealed bids.

A procedure and value analyst, who works in the administrative division, is responsible for a continuous study of purchasing procedures and for recommending any changes necessary. He also studies commodities purchased, compiles specifications and designates standards for items to be purchased. In this work, the department has been aided through the voluntary help of a Value Engineering (Analysis) Committee, composed of:

L. G. Hillquist, supervisor, engineering section, Division of the Budget

James M. McIntosh, Jr., special assistant, capital outlay, Department of Mental Hygiene and Hospitals

James R. Miller, assistant equipment engineer, State Department of Highways

Elilec Pate, chief, bureau of engineering, Department of Welfare and Institutions

Kenneth F. Weimer, architectural and engineering assistant, Division of the Budget

"Besides the value service received from the technical committee," Mr. Nunnally said, "the department is grateful for the advice and help of the Board of Purchases and Supply, composed of:

Stuart K. Cassell, business manager, Virginia Polytechnic Institute

Wingfield Chick, vice president, Richmond Machinery and Equipment Company

W. Frank Smyth, Jr., superintendent, Virginia State Penitentiary

Lester Williams, purchasing agent, Larus and Brothers Company

Dr. C. H. Wheeler, treasurer, and chairman of the board, University of Richmond."

The Printing Section is managed by William E. Butler, printing manager. Paper and printed matter, costing more than \$2,000,000, are purchased annually. Much of the printing for all State agencies is done at the State Penitentiary at a great saving to the Common-

wealth.

This section arranges annual contracts or price agreements for the purchase of paper, for all printing, duplicating, ruling and binding required by various state agencies and institutions, and for political subdivisions requesting these services. For the state institutions which have their own printing and binding facilities, only paper and supplies are purchased.

Along with the services rendered the different agencies in purchasing paper and printing services, this section handles all printed matter for the General Assembly. Responsibility for printing and distributing certain laws, bills, resolutions and similar material rests with the purchasing department.

Under the supervision of Roy T. Scott, purchase manager, in-service training sessions are held with departmental buyers for instruction in purchase procedures and techniques.

Periodic efforts have been made to encourage greater competition and to improve the quality of commodities purchased.

A specifications program is under way to enable the department to save money when buying products currently being used, or to purchase better products at no increase in cost.

Purchases of all materials for the penitentiary industrial department have been consolidated to take advantage of seasonable economies and to achieve an even distribution of work for the department.

Plans are also progressing whereby informal price or discount arrangements can be entered into with qualified local vendors for a definite term, thus permitting the agencies to issue purchase orders without soliciting bids each time.

During the past year, improved purchase arrangements for typewriters have saved many thousands of dollars without any sacrifice of quality.

Educational programs conducted for food service directors of state institutions led to the adoption of standard specifications for the purchase of coffee. This has improved the over-all quality of the product and at the same time brought about a substantial reduction in price.

One of the high volume items used by the state is carbon paper. Recently improved specifications now permit all state agencies to purchase a much better carbon paper at no increase in cost.

"We are constantly reviewing our specifications and standards so that we can take advantage of every opportunity to improve our purchases and supply program," Mr. Nunnally said.

*Felicitations to*

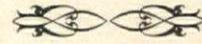
*G. Lloyd Nunnally,*

*Director of*

*Virginia's Department*

*of*

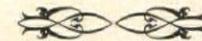
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CAROLINAS BRANCH

# Asheville Paving Company

ASHEVILLE, NORTH CAROLINA

MEMBER



CAROLINAS BRANCH

(Continued from page 13)

roads were surveyed and the road with the greatest number of points rated number one for paving. In the fall of 1957 the study was completed. It showed that North Carolina had 9,500 miles of unpaved Secondary Roads—the estimated cost of hard-surfacing them ran around \$130,000,000.

The really significant conclusion that the study pointed up was that the various Counties had widely differing needs. Along the coast one County had only 24 miles of unpaved roads while in one western County there were 903 unpaved Secondary miles. Since the purpose of the entire Secondary Road program was to distribute funds on a needs basis and bring the roads up to standard at a uniform rate, the County with 24 unpaved miles got slightly over \$30,000 while the western County was allocated well over \$500,000.

The entire results of the survey were published throughout the State along with the allocation of Secondary monies to each County. Every County Board of Commissioners could see exactly how its roads stacked up with the others and how much it could expect in the way of improvement. To be sure, some County Commissioners grumbled a bit over small allocations while others were delighted with appropriations larger than they had ever received before. Their total reaction, however, was well summed up in a resolution issued by the State Association of County Commissioners. The entire program was endorsed as being the fairest plan yet devised for Secondary road work.

In addition to setting forth County by County priorities, the Commission adopted State-wide minimum standards for Secondary Road construction. Roads would have at least an 18 foot travel way with adequate drainage and with bridges of at least 8 tons load limit. Even on stabilization projects the roads would be graded out to standard 18 foot widths with good drainage and an adequate all-weather surface.

Secondary Roads Officer Makepeace and his assistant Bill Ingram toured every County explaining the program to County Commissioners; in two years they've actually made three tours of the 100 County Boards and another is in the offing as the Secondary Road County Plans are readied for the 1959-1960 fiscal year.

But there was far more to the re-organization program than a new Secondary Road program. One of the strongest recommendations of the 1957 General Assembly called for establishment of a long range planning program

VIRGINIA RECORD JULY 1959

to avoid pitfalls of under-designing highways. Too often in North Carolina and other States, highways were practically out-moded the day they opened with traffic that poured on them from every direction. It was apparent that the State needed more four-laned facilities with access either limited or controlled; it was also obvious that sufficient right-of-way should be required for four laning where two lane highways would suffice for only a few years. Municipal traffic problems needed more State attention too.

A new Department sprang up within the Highway Commission—called the Advance Planning Section—staffed to the Director of Highways. Its job was to look ahead to 1980—gauge the future traffic demand and growth pattern of areas through which highways were planned—and come forward with recommendations for facilities which were flexible enough for future expansion when the need arose. Under the present policy it is not uncommon for the Commission to acquire far more right-of-way than would be needed for two lanes; however, when the traffic demand builds up, a place for an additional two lanes has already been provided.

The Advance planning Section, headed by R. J. Kimley is staffed with rural and urban highway planners, sociologists and economists and they work on the theory that highways should be located and designed with many factors involved, for roads have a tremendous impact upon the development potential of any area and they should be built to assist and not deter such growth.

As in most States, North Carolina's highway problem is controversial. With never enough money to go around, there is a constant public clamor for highway improvements in all sections. The present Highway Commission, realizing it cannot program all the work that is needed, has been anxious to plan first for only the most acute transportation needs. Hearing about the many needs at its various Public Hearings, requests have been referred to the Advance Planning Department where each request is given careful study.

Based on the hearings and engineering reports, the Highway Commission programs its future work twice each year. In October of 1957, the new Commission set up a priority program on Interstate Highway construction amounting to a total of approximately \$125,000,000 in work. Much of the work is now under contract with more scheduled for lettings in early 1960.

*(Continued on page 35)*

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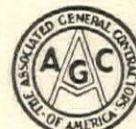
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(Continued from page 33)

In October of 1958 the Commission programmed some \$80-90 millions in improvements to its Primary System with a total of 93 individual projects. A large measure of the work approved was on a newly designated Trunk Line Highway System of major traffic arteries selected to tie in with the Interstate System in providing an efficient cross-State network of roads east and west, north and south. All of the projects will be put to contract during the next three year period.

The Commission's early approval of the road improvements assures that engineering forces of the Commission will have adequate time to study alternate routes and designs and come up with effective and well located highways. Regardless of speeded up efforts made possible by new cost-accounting procedures, a complete and modern data-processing center and facilities for photogrammetry (aerial photography for contour mapping and design), it still takes 18 to 24 months to go to contract with a road project after the Commission approves it in formal session.

For purposes of clarity there are three major highway systems in North Carolina: the Interstate System, the Primary Highways (US and NC numbered routes), and the Secondary Roads.

North Carolina's share of the 41,000 mile Interstate System will eventually embrace some 775 miles of freeways located to serve some 90% of the State's cities which have a population of 20,000 or more. The construction program is well on schedule. Since the passage of the 1956 Federal Highway Act making the super highways possible, North Carolina has expended some \$141 millions in grading the new highways and bringing up to standards existing routes. Second only to Texas in the progress of its work, North Carolina will let to contract this summer some 120 miles of Interstate paving.

Total cost of the Tar Heel State's Interstate Program is estimated at \$400 millions. Relatively large annual appropriations from the Federal government, approximating \$50 millions yearly in the first three years, have speeded the Interstate. Currently, 56.6 miles are completed and under traffic. Another 68.65 miles are constructed on four lane design and additional access control and grade separations are needed to meet the high Interstate engineering standards, while an additional 30.1 miles are now of two lane design but are in Interstate corridors.

At the present time, the North Caro-  
(turn the page)

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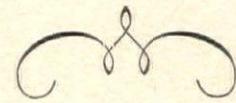
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NORTH CAROLINA

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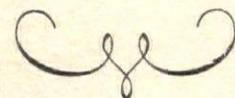
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to the  
North Carolina  
Highway Commission*

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(from preceding page)

lina Commission has 260.95 Interstate miles under contract with a total contract value of \$51,998,160. This consists of 142.98 miles of grading and 117.97 miles of paving.

The Interstate Freeways will serve North Carolina well, providing easy access across the State and from Virginia to South Carolina, but engineers recognize that these tollfree super roads will not serve as panacea to all traffic bottlenecks in the State. The greater share of the traffic burden has been and will re-

main on the 12,400 mile network of Primary Roads which carry US and NC numbers.

Effective long range planning is built into the Interstate System and the North Carolina Highway Commission is working earnestly to provide the same heads-up planning on its Primary facilities. Already much has been done in building four-laned roads where daily traffic counts run over the 5,000 vehicle mark. Additional four laning is planned—especially on Trunk Line Highways.

More than 170 urban bypasses have

been built in North Carolina with two significant results. Through traffic has been speeded up—the necessity of traveling through heavily congested city streets a thing of the past. Bypasses have been most beneficial to the cities and towns themselves for they are no longer burdened with thousands of vehicles trying to get into and out of town as fast as possible. Merchants have found that persons seriously interested in buying their merchandise can now travel downtown streets with greater ease and more parking places are available. Bypasses help local business and Chambers of Commerce, Merchants Associations and City Officials are taking the lead in urging new bypasses.

There is a growing awareness in North Carolina, however, that bypasses around major cities serve only a small percentage of the traffic, for the cities represent the ultimate destination of thousands of motorists. The cities themselves are growing too and a State which was predominantly rural when the Highway Commission was organized in 1921 is now more than 50% urban and suburban.

In the Industrial Crescent of the Piedmont, bounded by Raleigh-Durham on the north and east to the Charlotte, Gastonia, Shelby area in the southwest, cities are literally growing together. There is a pronounced effect on highway and street travel—so much so that the Highway Commission and the University of North Carolina are now conducting a massive origin-destination survey to clock driving habits throughout the entire area.

Even without the survey some of the trends are conspicuous. Farming families are now dividing their working time between their acres and nearby industries. Where once they went to town only once or twice a week they are now on the highways daily. The trend toward suburban living has lined rural highways with houses and new subdivisions are cropping up on the outer fringes of practically all cities.

The Advance Planning Department has been authorized by the Highway Commission to extend cooperative efforts to the State's municipalities in an effort to uncork bottlenecks according to long range Major Thoroughfare Plans which will coordinate State planning with City planning. The State has a vital interest, since more than 2,700 miles of City streets are on the State Highway System; incidentally that's more mileage than the 15 largest North Carolina cities have in their entire street system.

In the first two years of its operation, Advance Planning has prepared five

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Thoroughfare plans showing recommended street and highway improvements which will be needed to handle anticipated traffic during the next 15 year period. City officials of such municipalities as Roanoke Rapids, Canton and Wilmington have been eager to secure the services and advice of the Commission in planning ahead.

The 1959 General Assembly recognized the need for greater State-City cooperation in street and highway matters and, almost without opposition, passed legislation which will enable cities and towns to work closer than ever before in defining more accurately mutual responsibilities for developing adequate transportation facilities in and near the major urban areas of the State.

The same sort of thoughtful planning extends to the Secondary Road network of North Carolina. Last year well over 1,000 miles of Secondary Roads were paved with an equal number of miles stabilized to the minimum levels of service which are now uniform throughout the State.

Additional miles will be paved during the 1959-1960 fiscal years as Division Engineers, County Commissioners and the Department of Secondary Roads work toward meeting first needs first.

Like most States, North Carolina faces an unprecedented road need, with more vehicles traveling more miles to more different places year by year. Funds are not available and probably will never be available to meet the need in all quarters as rapidly as might be desirable. However, more and more North Carolinians are becoming aware of the total road need and the relationship of their area to all other sections of the State.

And the Highway Commission of North Carolina believes that through understanding comes a goodly measure of support, and public support is a prerequisite for progress, especially in the complicated and expensive task of building public roads.

Highways are nothing more and nothing less than pathways for progress in practically every phase of modern living and, both in progress and in highways, North Carolina is on the move.

*Our Felicitations to the North Carolina  
Highway Commission*

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(Continued from page 17)

drainage. More than 2,500 samples a year are processed.

"To present an adequate and accurate pavement design, a large amount of preliminary work is necessary. Soil samples are obtained at 200-foot intervals on a proposed centerline. Truck-mounted power augers drill the soil to a depth of at least five feet below the proposed grade line. Samples for every change in soil condition are brought to the laboratory for testing.

"In the lab, tests are made to classify the soil and to determine the factors entering into the design of the pave-

ment. The factors that must be known are: (1) specific gravity, (2) grain size distribution, (3) amount of silt size particles (0.05-0.005 mm diameter), (4) amount of clay size particles (smaller than 0.005 mm diameter), (5) plasticity, (6) natural moisture content, (7) maximum density obtainable with a given compactive effort, (8) maximum amount of water allowable for maximum density, and (9) bearing capacity of the compacted soil.

"The materials engineers are frequently called on to investigate road failures and make recommendations for their correction.

"In short, the soils laboratory serves the Department by furnishing pavement design recommendations, advising on soil problems, compaction equipment, and pavement failures, and approving only quality materials for use in subgrades, embankments, and bases."

Like the "Soils Lab," the Department's Geological Section, established in January 1947, had a small beginning. Today, according to Mr. Maner, these are its ten most important functions (but not in the order of their importance):

1. Locating of stone quarries, and sand and gravel pits.
2. Conducting aggregate surveys, either local or statewide.
3. Collecting and interpreting core drill data.
4. Making geophysical surveys (electrical resistivity).
5. Making vibration studies in connection with potential blast damage.
6. Investigating slides or areas of potential slides and suggesting either preventative or remedial measures.
7. Assisting in the design of slopes and benches.
8. Investigating alleged blast damage to wells, springs, and dwellings.
9. Acting as expert witness in litigation.
10. Instructing engineer trainees in refresher courses in general geology.

As this writer was reading the list of functions, the one numbered "4" ("Making geophysical surveys—electrical resistivity") brought him up short. His ignorance was expelled and curiosity satisfied as Engineer Maner thus explained what it was all about.

"Another technological advance that has been of great benefit to the Department is the electrical subsurface survey. Here again, the old method of estimating the amount of rock and soil that may be encountered has given way to the more accurate determination by the electrical resistivity method. This method measures the resistance a material will offer to a given electrical current. By correlation with the known geology, and with one or two test holes, an accurate rock soil profile can be developed. The designer will thereby be able to balance his quantities and make an estimate of the amount of borrow material that may be needed. The Department has been using the resistivity method since 1950, and our predictions based on this rock soil profile have averaged 98 per cent correct.

"Within the past few years, the development of an instrument for the measurement of vibration and the ac-

*Congratulations to the Virginia and the North Carolina Departments of Highway. Only through your example of unity in law enforcement can we hope to halt our present highway death rate.*

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celeration of shock waves through the earth and rock has gone far to eliminate potential court cases and to substantiate the claims of the state or property owner."

Testing of materials for highway construction that will insure permanency is one thing, but it must be backed by their control, the scope of which cannot be covered in this article. However, let's dip briefly into one of Mr. Maner's monographs on the subject. He writes:

"Today, 23 materials engineers and technicians work with modern equipment to give accurate test results on the tens of millions of dollars' worth of materials they inspect each year.

"More aggregates are tested than any other material. The physical laboratory makes quality tests on aggregates from more than 125 sources of supply throughout Virginia and bordering states. Aggregates are subjected to rigid tests. . . ."

Among these are included tests for abrasion and freeze-thaw, both vital to road durability.

Few laymen realize that building our modern highways offers a challenge to chemistry. This challenge has been accepted by the Department since 1929. We learn this from a fascinating article by R. G. Bremner, chief chemist, in which he explains that:

"In general, the materials tested in the chemistry laboratory are manufactured products, whereas most of the materials tested in other sections are natural products. The materials tested cover a wide range. Some, such as asphalt or bitumen, which was credited with waterproofing Noah's Ark, are as old as recorded history. Other materials tested are as modern as weed killers and reflectorization products.

"Of course, the asphalt used by the Egyptians was vastly different from that used by the Highway Department today. Their asphalt came from natural deposits and was taken as found. Today, asphalts are obtained from petroleum and are carefully refined to meet the requirement of any one of numerous grades. The Department uses some 20 grades, each designed for a particular purpose, and it is the responsibility of the chemistry section to make sure that the Department gets the grade of asphalt specified. The total amount of asphalt required by the Department in a year exceeds 40 million gallons. All of this is tested and approved for quality before shipments are made, so that work on the roads

will not be held up."

In our survey of scientific methods employed by the Virginia Department of Highways, we cannot fail to mention "The Bituminous Lab" which is explained in detail in an article by R. S. Thomas, Jr., (in Virginia Highway Bulletin, Vol. 24, No. 2, Feb. 1958), or to observe that you cannot make accurate tests unless you maintain ceaseless vigil over the instruments used to make them, which is the duty of the Department's special "Maintenance Lab", where precision is the watchword.

These are all united under the Virginia Department of Highways to build and maintain highways for "your safety, comfort and convenience." ●

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## BUSINESS REVIEW

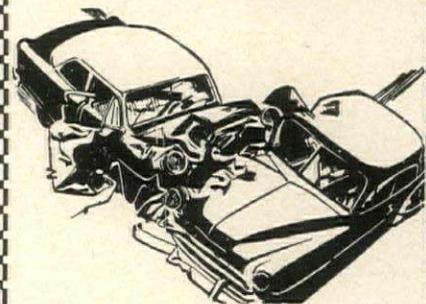
*(from page 29)*

to the president of the Chesapeake and Potomac Telephone Companies operating in Virginia, Maryland, Washington, D. C., and West Virginia. . . . R. E. Combs has been appointed general sales manager of Jewell Ridge Coal Sales Co., Inc., according to announcement by Dr. Huston St. Clair, president of the company. . . . Ralston L. Brooke, formerly with the Vicks Products Division of the Vick Chemical Company in New York, has come to Richmond to be associated with Car-

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gill, Wilson and Acree, Inc., Advertising, as an account executive. Mr. Brooke is a former publicity and promotion director for radio station WRNL in Richmond. . . . D. Wallace Gills has been appointed manager of the Petersburg Blue Cross-Blue Shield District Enrollment Office, according to announcement by Kenneth G. Rice, assistant director of the hospital and medical prepayment plans in Richmond. From the Petersburg office, Gills will serve the counties of Dinwiddie, Brunswick, Greensville, Sussex, and Southampton, and portions of Chesterfield and Prince George counties. ●

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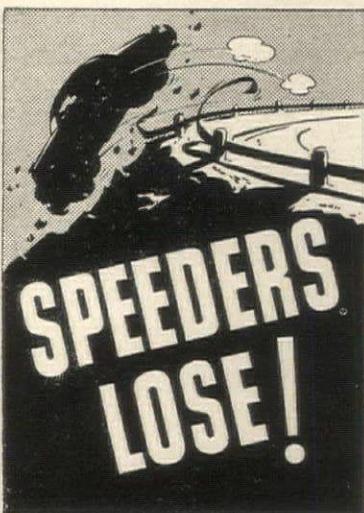
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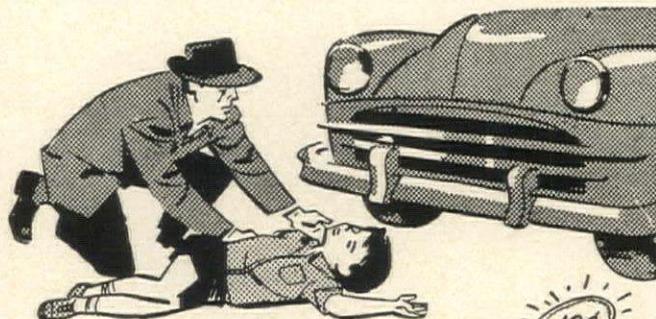
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**"THEY'LL PROBABLY NOT BE AT HOME"**—from page 5.

"Haven't anything to do?" This was an outraged shout. "When I was your age, we had so many chores to do on the farm that if I had a chance to sit down and do *nothing*, the way you are now, I'd count myself lucky."

"Things are different now."

"What's different? The only thing different I see is that you don't have anything you *have* to do. Why don't you read one of those books you're always bringing home from the second-hand book-store?"

"I've read them all."

"Isn't this a pitiful thing for a young man? My, my, my." At this moment the mother would appear, fully refreshed, and dressed for Sunday afternoon. The father said, "Well, I'll tell you what you can do. You can come walking with me and your mother, and we'll all put our heads to finding out something that can be done about your sad, empty life."

So the young man would miserably join his parents and walk with his eyes

cast down, so that if he didn't see any of his companions maybe they wouldn't see him. Nothing would be said about something for him to do. By the time the father finished dressing and put on his straw hat, he had forgotten his son's plight. But the son discovered that the parents were actually enjoying themselves in this aimless stroll. Every house they passed would suggest some aspects of the inhabitant's lives they were interested in commenting upon. At the edge of their own neighborhood, they paused before turning back, and then the mother said, "Let's drop in here."

"Oh, I don't know. She can be a talking-machine when she gets started."

"They'll probably not be at home," the mother answered. "We'll just leave a card."

At this the son would manage to escape. Back at his own block, his companions would now be coming out, seeking one another. The world is

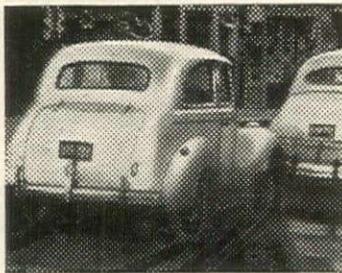
bright again.

On one of these Sundays, the boys compared their dismal experiences in the post-dinner dead-fall and decided to do something about it. What they did sounds terribly unexciting, but it must be remembered that in those days Sunday was regarded as a day on which pleasure was forbidden, even sinful. The boys could not play baseball, practice dancing, or even venture away from "the immediate neighborhood," so as to expose themselves to wider temptations.

With these restrictions, they constructed a club-room in the one available basement that was reasonably cool, contained some visibility and offered sufficient space for the privacy of the "club." There each boy brought each Sunday a batch of his books and traded among his fellows. With eight or ten traders, the available supply circulated for the rest of the summer. These boys, refusing to endure the boredom and yet not trying to escape from it, had anticipated both the boys' clubs that organizations form for the restless today and the book-of-the-month clubs which organizations form for those who do not trust their own tastes. They resolved their own period of unfulfillment within the fixed pattern of a community and, in so doing, cultivated their own inner resources.

Had radio or television been available to fill the void for them, in all likelihood they would not have done it themselves; had a car been available, they would have escaped from both the need and the environment. When these escapes became possible, the escapers cut themselves off from the customs perpetuated through the generations. As all sociological studies stress the significance of customs to a culture, it is perhaps the passing of timeless customs from our scene which gives the old days their pull of nostalgia.

It is not only all the outside threats to our safety which unsettle the current generations, but the absence of the roots of custom. Rootless and restless, we are trying to face dangers from a vacuum. In the history of civilized mankind, this has never been done; but, somehow we feel that we could have faced these dangers better in "the good old days." It would be vastly reassuring to observe a couple contentedly strolling on a Sunday afternoon, and, with no need to "do anything" or be with other people, observe the ancient customs of leaving a card at a house where "they'll probably not be at home."  $\Delta$



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