The Department of Civil Engineering

The Technician

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ESTIMATED HIGHWAY COSTS AND TRAFFIC REQUIREMENTS

Announcement of Prizes Offered to Seniors in Highway Engineering

(By Prof. Harry Tucker, Professor of Highway Engineering.)

Road building is probably one of the oldest branches of engineering; and with the development of more efficient means of transportation, the methods used in building roads have been constantly improved. Today the bulk of money spent for public improvements is spent in the construction and maintenance of public roads, and the aim of the engineers responsible for the design and construction of the modern highways is to see that this money is so spent that the returns will justify the cost.

The justifiable expenditure for highway construction is dependent upon the class and amount of traffic to be served. This point was brought out in a lecture to the students in Highway Engineering at State College by Mr. C. E. McClintock, of Warren Bros. Company of Boston, Mass. Mr. McClintock visited the College on Monday of this week. In the course of his talk he described the construction of a road near Perth Amboy, N. J., that cost $142,000 per mile. It is a Warrenite-Bithulithic top course on nine inches of concrete, which in turn rests on six inches of cinders. The road is thirty-two feet wide, and was built to

(Continued on page 8.)

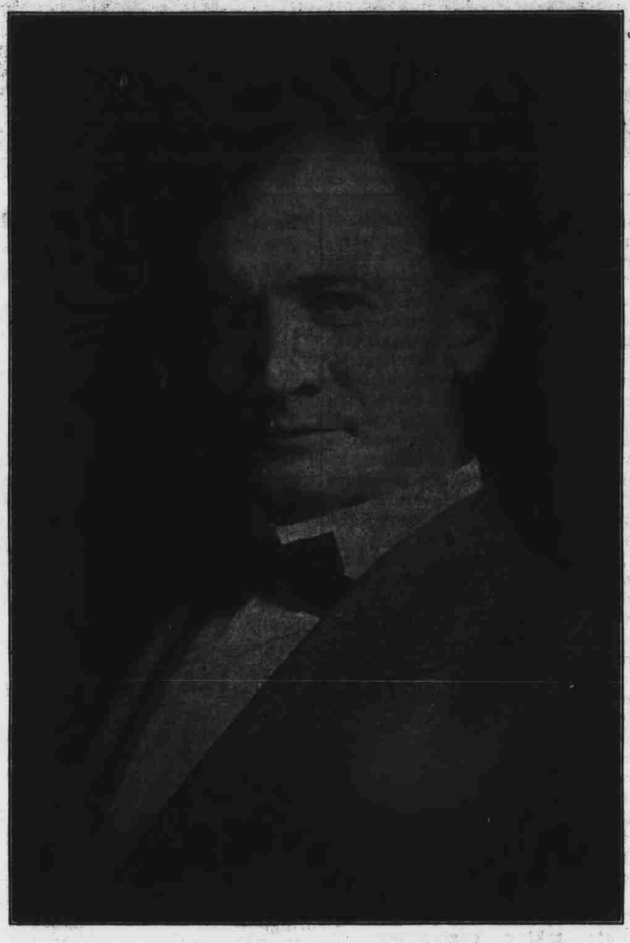
AUTO OWNERS MUST EVENTUALLY PAY FOR HIGHWAY BUILDING

Demand of Motorists For More and Better Roads Means They Must Bear Burden of Financing

The motorist must pay the road building bills of the future and a five-cent gasoline tax is not far distant. The demand of automobile owners for more and better highways means that the burden of financing their construction and maintenance necessarily must be assumed by those who will benefit most from them, says the Western Highway Builder.

Hostility to long-term bond issues for road improvement in evidencing itself everywhere. In Illinois, automobile associations are opposing the projected $100,000,000 bond issue for road improvement, not because of the amount involved or the work contemplated, but because of the method

(Continued on page 6.)



DR. WALLACE CARL RIDDICK
A Civil Engineer and Dean of the Engineering School

HEAD OF SCHOOL WAS ONE TIME PROFESSOR OF CIVIL ENGINEERING AT THIS INSTITUTION

Dr. Wallace Carl Riddick has been connected with the college in one capacity or another since 1892, but by far the greater portion of this time has been spent as a member of the teaching staff, in the departments of Civil Engineering and Mathematics. In transferring, at his own request, to the instructional side of the college, he is following again well-known trails, where he achieved marked success, for Dr. Riddick does not intend merely to head the Engineering School as an executive officer; he will also actively engage in teaching.

The engineering side of the college has gone steadily forward along all lines since it was first established, and there is every reason to believe that its growth and development in the future will be even more rapid, as Dean Riddick will bring to the Deanship of the school his fine ability as an executive and a wide experience in the engineering field.

NORTH CAROLINA, PLACE FOR CIVIL ENGINEER GRADUATES

The Old North State Has Set Its Goal and Is Not Looking Backward

(By C. L. Mann, Head of the Department of Civil Engineering.)

The broad view which the Department of Civil Engineering of the North Carolina State College attempts to give the students pursuing work in this course is to impress upon them the importance of how they can best serve the State when they leave the institution. There was a time not many years back when in looking for employment for the graduating class we sought openings with various companies outside the State, usually in the North, for then the South had not begun to see its possibilities. But now that North Carolina has set its goal and is not looking backward, these young men, after graduation, readily find employment in this State, the demand for the graduates being greater than the supply. This is as it should be, for the State will need them if it is to continue along progressive lines.

It is true that in some cases it is better for a young man after completing his four-year college course to extend his education by attending some larger institution where he can be given a chance to specialize in a certain branch of his profession, or by accepting employment with some large company or corporation where

(Continued on page 6.)

THE DEPARTMENT OF CIVIL ENGINEERING

A Brief Outline of the Four-Year Courses; Highway Work Elective in the Senior Year

The course in Civil Engineering is arranged to give the student an understanding of the principles underlying the various branches of the profession and at the same time teach him to apply these principles to the practical problems with which the engineer has to deal.

The professional work begins the second term of the first year with Engineering lectures. The second year those students electing Architectural Engineering are given special instruction along this line. This work is continued through the third and fourth years. Those students taking the regular work leading to a degree in Civil Engineering may elect at the beginning of the Senior year work in the Highway Engineering Department.

ADVANTAGES OF SURVEYING TO STUDENTS TAKING ENGINEERING

(Joseph D. Jamieson, B.C.E.)

This article is designed to show or give some of the reasons and advantages of a surveying course to all students taking engineering. It is thought that the advantages can best be given or shown by showing the need an engineer has for surveying, in that the advantages come by the fact that he is able to do or direct others to do surveying.

The subject of surveying, as given in our technical schools, has been too largely confined to engineering students taking either civil or highway engineering—the latter a branch of civil engineering which has, during the last few years, been instituted in most all of the leading technical schools of this country to supply the demand for highway engineers. However, there is a growing need, or already an existing need, for all students taking a course in any kind of engineering, as electrical, mechanical, mining, or architectural, to have a fair or thorough knowledge of the principles of surveying.

The electrical, mechanical, mining, or architectural engineering graduates of our technical schools are probably called upon, at various times, to do, or direct, surveying. This surveying may be hydrographic surveying, which includes all surveys made on or concerned with any body of water, either still or running; topographical surveying, a survey for the purpose of obtaining the geographical position of points and objects on the surface of the ground and data in regard to the character of the surface in respect to elevations and depressions; or plane surveying, which is the art of determining, from measurements made upon the ground, the relative position of points or lines upon the surface of the earth and keeping the record of such in a clear and intelligent manner, so that a picture (called plot) may be made of the lines or areas included in the survey. This type of surveying includes land-surveying, surveys for the measurement of volumes, etc.

Besides the many different kinds of surveys to become familiar with there has been designed and constructed many types and kinds of instruments for use in the field of surveying—all of which are more or less complicated in structure and manner of operation—thus making it necessary for anyone, before they can use or operate them, to have a fair knowledge of the design, the structure, and the capacity and limitations of such instruments, as well as the sources of error in their use.

Courses in surveying are conducted as part recitation and part field or practice periods. Here the student is taught the theory and practice of surveying. The class room covering the theory, the practice period putting into use the theory. The practice work is usually performed about the college campus, or in the near vicinity, or some distant location is made for extended surveys.

Since the writer has touched briefly upon the different kinds of surveying, instruments and manner of conducting the course, therefore, to the subject of advantage of a surveying course to all engineering students. In the words of a great writer on Engineering subjects, "Inasmuch as all engineering structures or works involve a knowledge of that proportion of the earth's surface on which they are located or placed, together with the necessary or resulting changes in the same, so the execution of such work is usually accomplished by making surveys to obtain the required information or data." Thus surveying is seen to be indefinitely related to engineering. Hence, making it necessary for all engineers—and when the writer speaks of engineers he talks especially of mechanical, electrical, and architectural engineers—to have a thorough knowledge of surveying. When the words "thorough knowledge" is used it means that the student should make himself familiar with the structure and use of each part of every instrument put in his hands; know the principles of surveying as given to him, and to do in the field every kind of work given to him, learning to solve geometrical problems by the manipulation of the instruments. Otherwise he may be called upon to solve or direct others to do that which he should have known. And unless courses are given in surveying to our engineering students how can we expect them to measure up to the standard of students from other schools, and how can they be expected to meet and solve the problems that might confront them from time to time in their daily work? It might be added here, that practically all engineering schools in the country have adopted a uniform course of study for the first two years for all students taking engineering, of course giving the engineering Sophomore one year in surveying.

On presenting this article the writer thinks the advantage of a surveying course for all engineering students has been expressed in a way that will give thought to those in need of it and one particular institution in mind, and it is hoped that it has not been wanting in general interest.

TESTING THE STRENGTH OF CONCRETE IN THE LABORATORY

The Five Senses

Sea-food was discovered when man first went to SEA
And when they SMELT the iron they made a great discovery.
Trouble was first brewed when a neighbor made a TOUCH
They HERD the sheep and found the wool which means to man so much.
"But who invented Clothing?"—you ask of me in haste.
Why the first of human beings who developed real good TASTE.

The Civil Engineering Faculty

WALLACE CARL RIDDICK, Dean of Engineering; A.B., University of North Carolina, 1885; C.E., Lehigh University, 1890; LL.D., Wake Forest College, 1917.

Teaches Hydraulics and Water Supply.

CARROLL LAMB MANN, Professor of Civil Engineering and Head of the Department; B.S., N. C. State College of Agriculture and Engineering, 1889; C.E., 1906.

Teaches Mechanics, Roofs and Bridges, Graphic Statics, Bridge Design, Sewerage, Municipal Engineering, Structural Engineering, Reinforced Concrete, and Topographical Drawing.

HARRY TUCKER, Professor of Highway Engineering; B.A. and B.S., Washington and Lee University, 1910.

Teaches Mechanics, Highway Engineering, Roads and Pavements, Astronomy, Highway Drafting, and Highway Laboratory.

ROSS SHUMAKER, Associate Professor of Architecture; B.Arch., Ohio State University, 1916.

Teaches Architectural Design, Descriptive Geometry, and Water Coloring.

LOUIS ERNEST WOOTEN, Assistant Professor of Civil Engineering; B.E., N. C. State College of Agriculture and Engineering, 1917; C.E., 1923.

Teaches Railroad Engineering, Descriptive Geometry, Masonry Construction, Mechanics.

New additions to the teaching staff are: Mr. J. D. Jamison and Mr. Philip Schwartz.

Definitions

Freshman — Proof of Darwin's theory.

Clubs—What Maggie uses on Jiggs.

Music—What Sam Wallis doesn't produce.

Exams—Something on which we open up our minds to satisfy the curiosity of the faculty.

Jokes—The most of us.

Ideas—What the Soph's heads are full of.

Reports—A very unnecessary little slip of paper that causes much wailing and gnashing of teeth.

Flunks—What reports contain.

Diplomas—The result of four and maybe more years of hard labor.

CADETSHIPS TO WEST POINT

A letter has recently been received by the Professor of Military Science and Tactics from the War Department regarding vacancies at the Military Academy at West Point. Candidates for appointment are nominated by senators and representatives in Congress from their respective districts. No person is eligible for appointment unless he is a resident of a district which has a vacancy. There are two vacancies in North Carolina to be filled on July 1, 1924. The vacancies are from the Second and Seventh Congressional districts.

For the benefit of those who may be interested in securing one of these appointments, the following information of West Point is given:

A. **Age limit.**—Candidates at the time of admission must be between the ages of 17 and 22 years.

B. **Educational Requirements.**—There are two methods of meeting the educational requirements for admission to the Military Academy, viz., by successfully passing the regular entrance examination, or by submitting a satisfactory educational certificate in lieu thereof.

Admission by examination.—Those appointees who enter by examination must show that they are well versed in algebra, to include quadratic equations and progressions, and in plane geometry, English grammar, composition and literature, and general and United States history.

Admission by Certificate.—The academic board will consider and may accept in lieu of the regular mental examination:

(1) A properly attested certificate that the candidate is a regularly enrolled student in good standing in a college or technical school accredited by the academy.

(2) Certificate of graduation from an accredited high school.

(3) A properly attested certificate from the College Entrance Examination Board that the candidate has shown proficiency in examinations conforming to those required by the Academy.

C. **Physical Examination.**—Appointees to West Point must be sound in body and will be required to stand a thorough physical examination.

W. E. SHINN.

W. L. TREVATHON
President, Fall Term

W. S. MORRIS
Vice-President, Fall Term; President for Spring Term

B. P. BARBER
Vice-President, Spring Term

The Student Branch of the A. S. C. E.--Vital Factor in the Civil Engineering Department

Society Has Done Some Good Work During Past Term and Outlook is Bright for This Semester

At the last meeting of the Student Branch of the American Society of Civil Engineers the officers for the Spring Term were elected. The officers for the past term were: W. L. Trevathan, president; W. S. Morris, vice president; H. L. Medford, secretary, and W. P. Batchelor, sergeant-at-arms. The incoming officers are: W. S. Morris, president; B. P. Barber, vice president; W. P. Batchelor, secretary-treasurer, and C. L. Barnhardt, sergeant-at-arms.

During the past term the society has been visited by the National Secretary of the A. S. C. E., Mr. Dunlap, who gave a very interesting talk along engineering lines. Other men who have appeared on the program are Dr. Brooks, Dr. Manning, Dr. Taylor and Dr. Riddick. The regular program of the society was also very instructive and entertaining to the members. Practically every member of the Department of Civil Engineering above the Freshman Class are members of the society.

The society has shown its usefulness to the department in a number of ways and the head of the department is very much interested in the welfare of the organization and is helping all he can in making the society mean as much to the members as possible.

Association of Ideas

Mother of Twins: "You say that Mrs. B. called me a cat?"

Nurse (in charge of twins): "Well, she looked at the babies and said, 'What dear little kittens!' "—Lafayette Lyre.

A Flapper Chair

'24: "That's a vampy little chair you have there."

'25: "Whaddaya mean?"

'24: "Bare legs, a low neck, and not much upholstery."—Mass. Tech. Voo Doo.

Over at Meredith

Jas. to Eddie: "Don't keep looking around at that girl; Charlie will see you."

Charlie (overhearing the remark): "Don't mind me; I live here."

HIGHWAY ENGINEERS AT STATE COLLEGE

A Course Offered to Meet the Demand for Trained Highway Men in This State

A definite general course in highway engineering was first offered at State College in 1919-20. With the increasing construction of highways and the expenditure of large sums of money in the State in building a State system of roads, it was felt that more opportunities should be given the students to specialize in highway engineering. In creating the Department of Highway Engineering no attempt was made to give a "short course" in highway engineering; it was realized that the student specializing in highway engineering should first be given a thorough course in the fundamental and general subjects of civil engineering. It was therefore arranged for the special courses in highway engineering to be given largely in the Senior year of the four-year course in Civil Engineering.

The Development

Since 1919, when the Department of Highway Engineering was created, there has been a rapid development of the work of the department. New equipment and new subjects have been added, until at present it is believed that the course in highway engineering at this institution is as nearly complete as could be desired. However, the new appropriations made for the coming year will enable the department to continue to expand just as rapidly as during the past three years.

Harry Tucker, Professor of Highway Engineering

Professor Harry Tucker is at the head of the Highway Department and has served in that capacity since the department was created in 1919. Perhaps no better man could have been found for this department than the one who is now at its head. Professor Tucker is an engineer of Statewide repute, an able and efficient man for the position that he occupies. He is a member of the American Society of Civil Engineers and is secretary for the North Carolina Board of Engineers. The students that carry work in the Highway Department receive inspiration from their instructor, for they recognize in him a man who has proven himself an engineer and a gentleman.

PROFESSOR CARROLL LAMB MANN

Head of the Department of Civil Engineering—An Able Engineer Leader in the Profession

No department of any college can ever hope to push forward unless they have at the head of that department a man that has ability and vision. Granting that this is true, we point with pride to the Department of Civil Engineering, and call your attention to the great advance that this department has taken within the past few years. We feel that a great amount of credit for the success of the Civil Engineering Department is due to Professor Mann, who by his efforts and energy has placed the department in its rightful place, at the head of the Engineering School.

PROF. C. L. MANN
Head of Department of Civil Engineering

Professor Mann is a product of this State, and was graduated at North Carolina State College; he later received special work at Cornell University and was in Government service on the Isthmian Canal Commission in Nicaragua, Central America. He was Professor of Railroad Engineering at this College from 1910 to 1916, and has been at the head of the Department of Civil Engineering since 1916. Professor C. L. Mann is a member of the American Society of Civil Engineers, a member of the American Society of Railroad Engineers, a member of the American Association of Engineers, a member of the North Carolina Society of A. A. E. and A. S. C. E., a member of the American Waterworks Association, and several other engineering organizations.

"Ol' No'th Ca'lina"

(Reprinted from the Raleigh Times)
Berton Braley

As soon as you get to No'th Ca'lina
The roads and the towns get newah, finah,
The people walk with a brisker step,
And even your motor has more pep.
The hookworm's banished, the country has
A lot more energy, pep and jazz;
The livest Northerner couldn't design a
Livelier State than No'th Ca'lina.

The farms look fatter, the hamlets ain't
Quite ignorant of the sight of paint,
They're building roads, and are not content
With sand and clay, but they use cement,
And the schools look good; the mills are busy,
And each inhabitant owns a Lizzie,
Or a big twin-six, or something finah,
As soon as you get to No'th Ca'lina!

This State's not dreaming of the days gone by,
There's a modern glint in each mortal's eye,
And the village belles and village beaux
Are smartly dressed as the crowd which flow
On Gotham's streets. You must give 'em credit,
These folks are fully awake, you said it!
You meet the "boostah"; you lose the "whinah,"
As soon as you get to No'th Ca'lina!

Five Longest Highways

The five longest national highways are: The Lincoln, the National Old Trails road, the Roosevelt National highway, the Dixie Overland highway and the Pikes Peak Ocean-to-Ocean highway.

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Editorials

Sand, that indispensable constituent of so many engineering structures, is accorded a full page of poetic eulogy in the Little Rock *"Blue Book."* But Mellon Kolly, of Carnage, Okla., reminds us that one little grain under the eyelid will offset a whole carload in the moral fibre.

A primary object of the engineering school is to develop young men for effective service in industry. It therefore follows that in the close co-operation between the engineering school and industry lies the means for the accomplishment of the aims of both.—*Engineering Education,* December, 1923.

An Eastern woman has conferred upon herself the title of "Home Engineer." According to a syndicated press article, "manufacturers of electrical devices and home mechanics take up with her their inventions. She is consulted by architects and inventors. She directs the management of homes all over the country."

As further proof of her qualifications for the title, we note that she is unmarried and lives in a hotel.

When an engineer dies in Germany, they take it philosophically, to say the least, if this notice which appeared in a Berlin paper can be taken as evidence:

"Engineer Carl Alexander Weidinger sends hearty greetings to all who remember him. He died on October 19, 1923, at 10 p. m., after having lived 75 years—quite long enough. The remains were cremated and the ashes taken to Prague for burial in the family vault."

"Engineering education is incomplete if it fails to impress the student with the opportunities of the engineer to render service to the public," says A. A. Potter, Dean of Engineering, Purdue University. "The young engineer must realize that he does not do his duty as a citizen and as a member of a great profession if he confines all of his interests to his specialty to the exclusion of problems which affect the general welfare of the public. The engineer must not limit his vision to small things."

Reading the literature of his business or profession is an essential part of the education that every man must get if he is really to succeed. A man must be "practical" to succeed. He must in addition, however, learn much that the "practical" man cannot learn in his daily work. "Experience is the best teacher," but the man who learns only by his own experience will never know much or go far. Reading is the best available way of learning much by the experience of other people.—*Railway Age.*

Four scholarships, each carrying an annual payment of $500 per year, are awarded annually by the Westinghouse Electric and Manufacturing Company to employees and sons of employees on the basis of competitive examination. The effort of the committee awarding these scholarships has been to find young men of a many-sided nature. Intelligence, physical qualities, aptitude for engineering work, ability to shoulder responsibility and to guide their own affairs have been the general points on which the candidates are compared.

ENGINEERING EDUCATION

Proper selection and training of the new men for positions of administrative and technical responsibility in industry are vital to the economic developments of our country. The growing complexity of industry, as of all society, adds continually to the burden of those who occupy leading positions; hence they must be selected with increasing care and given a steadily broader and more thorough training. In the engineering school and industry lie the means for the accomplishment of the aims of both.—*Engineering Education.*

THAT SUMMER JOB

Much has been said pro and con about summer work for students in engineering colleges. As yet the attitude of the faculty of our college has not seen fit to require that students spend their summer months in actual practical engineering work, with county engineers, highway commissions, steel plants, electrical concerns or many other lines of engineering work. A number of colleges require that the undergraduate, before receiving his degree in engineering, spend his summer vacations in practical work, some even going so far as to find the men jobs, some taking them to a summer camp supervised by the college, while still others leave it to the men themselves to spend their vacations as they like.

No summer work is required of any student of engineering, leaving it more as a matter of choice whether the individual wishes to round out the practical side of his education before leaving college and thereby better fitting himself for a place after graduation, or letting it go entirely until all the theoretical part of the education has been gathered in college. The former man has the jump on his fellow students both during his school years and after he has graduated. He sees how some of his theoretical work is applied to actual construction; he works along with the laborer and gets his viewpoint on life which helps later if he ever has a chance to handle men; and, besides, he gets the real thrill of the engineering profession, that of seeing something done which will stand, something that will be remembered, something that is before the public eye at all times. This latest point is the one that counts. It is this spirit that makes engineers stick to the job. It is this spirit that conquers the opposing forces of nature. Think of the big things that are in the world today, the big things that stand for notable engineering feats, monuments to the profession, and then think what you did to help promote the profession that you intend to follow, during the summer just past. Did that summer job help you any? Did you learn anything of practical value? Did you enjoy your work? Think about these questions and then think it over again before you go to work for the summer.

THE WORD "ENGINEER"

To the Editor:

Mr. Editor, dear, the word "Engineer" has the whole world in a quandary, for it's so incorrectly used and terribly abused that the word seems to need the laundry.

A "civil" calculates things right, usually works half of the night, and his pay is too small to mention, while the "efficiency engineer," 'tis true, he "does things nights, too," and his methods are a quite recent invention. He claims to doctor your "bizz," owns a better car than a "Lizz," collects real money—or at least that's his intention.

Some engineers are known as "donkey," "lokey," steam, or gas and for almost any trade but dishwashers the title seems to pass. Some engineers rely on muscles, some on brains, while some use only steam to move stumps, rock, dirt, and trains.

Some engineers, lacking muscle, steam or brains, use what is known as "the bull," and are called engineers.

Now, Mr. Editor, I believe you and I agree that some day "engineer" will be correctly used and defined and less abused by those so inclined and the fellows who right it will include you and me, and 100,000 others who will compose the real engineering association.

P. S.—Perhaps I'm dense, but to me it seems queer to tack on "efficient" to the title "engineer."

—Professional Engineer.

AN APPRECIATION

The members of the faculty of any college go far towards making that college what it is. They are the leaders who instill in their students the thoughts and ideals that they should carry with them through life. State College has scores of these men who thus give State College students a real insight into life and its manifold purposes and opportunities. Prominent among these is the name of Professor Mann, head of the Department of Civil Engineering, who has the welfare of the students of his department at heart and the interest of the college as his personal interest. Professor Mann has won the admiration and respect of the entire student body as a man of the highest personality, character, and ability.

THE ENGINEER'S PURPOSE

It has been said here that much civic progress depends on the engineer.

When American engineers come largely into civic service, sound advance should result. For the engineer thinks in facts. He deals in realities, figures, measurements—not theories. There's no guesswork about a bridge or tunnel. They stand because it is known, before they are builded, that they will stand.

In civic affairs ideals are necessary. But if each ideal purpose might be submitted to engineering analysis, there would be less waste, costly experimentation, disappointment; there would be fewer failures and more enduring results.

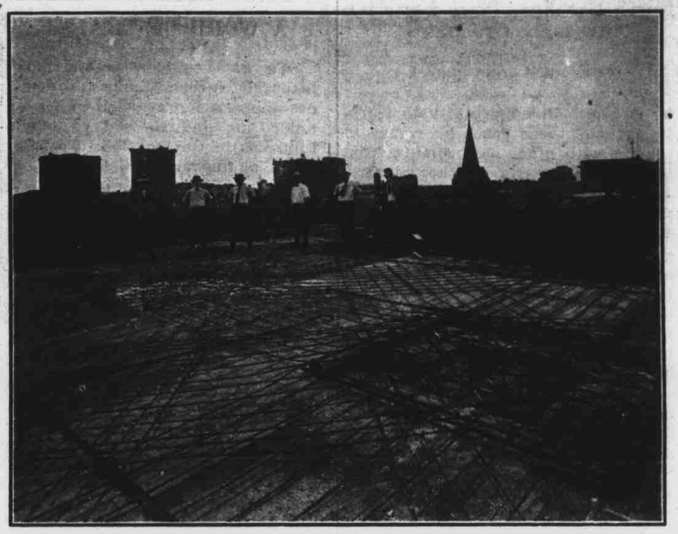
THE CIVILS AND THE PART THEY PLAY IN COLLEGE LIFE

It has been generally noticed that a great many men taking a prominent part in the general activities of the student life are from the Civil Engineering Department of the college. The true worth of a man to the college and to the college community is not measured solely by his scholarship attainments, or by his prominence about the town in a social way, but rather by the way in which he connects himself with the various college activities and the manner in which he tries to make himself a vital part of the great organization of the college.

The high type of men that generally register in the Civil Engineering Department is perhaps responsible for the interest that they take in the general college activities. In the regiment, on the athletic field, in the literary society halls, in the Y. M. C. A., and in the scholarship societies, we find the civil engineering students occupying a prominent place. For a brief consideration of the various activities of these students, we find the following:

That the manager of the baseball team is a Civil, the manager of the football team, the manager of the basketball team, the manager of the Freshman teams are all members of that department. There are more Civil Engineering men in the Pine Burr Honorary Scholarship Society than from any other one department. There are three men on the Cabinet of the Y. M. C. A., the editor and business manager of the 1924 *Agromeck,* the editor and the athletic editor of The Technician are all Civil Engineering students. This represents in a small way the activities of the students from the Department of Engineering. A great representation is found in the ranks of those who are putting State College on the map.

INSPECTING A WORN-OUT STREET



A CLASS IN REENFORCED CONCRETE INSPECTING A JOB

THE ENGINEERING EXPERIMENT STATION: ITS APPEAL TO STUDENTS

(By Director H. B. Shaw.)

State College is committed to, and actively engaged in, a great movement—that of the complete unification of all of its purposes, efforts, and facilities, with a three-fold program of research, instruction, and extension.

The Engineering Experiment Station which was recently established here as the research agency in engineering is being organized as an integral part of the School of Engineering. Nine teachers and three student assistants are already engaged in seven investigations or "projects" which are:

"Investigation of the Blank Spaces in the Wave Spectrum"; "Roofs, Chimneys, and Flues With Special Reference to Permanency and Fire Protection"; "Tests of House Heating Plants"; "Tests of House Electric Lighting Plant"; "Joints in Furniture Construction"; "Investigation of the Vegetable Oil Industry"; and "Tests of North Carolina Brick and Tile."

It is too much to expect that every teacher in engineering will undertake some investigation in the line of his specialty and that many of them can arrange to do this through supervising the work of student assistants who are selected for the specific project? Some teachers, undoubtedly, will develop research which they can do best by devoting their summer vacations to investigation. Some of them will need assistants. We may expect the appointment of "Research Fellows," that is, graduate students who spend half of their time on investigations and half in graduate study. Research engineers also are needed, that is, capable research men who devote all or a large part of their time to investigation and a comparatively small part of their time to teaching while the investigations are in progress. Such men, their research and the equipment will be available for teaching and further investigation later. For example, the ceramic engineer or professor of ceramics, to be appointed, probably will find that the first need is a thorough investigation of the clays, kaolins and other ceramic resources of the State and the establishment of a ceramics laboratory for the testing of samples and for the determination of the commercial possibilities. Later he will be in better position to offer informed courses of study in ceramics here. Similarly, the investigation of vegetable oil industry precedes the teaching of this subject which is of such great and growing importance in North Carolina.

Among the subjects which teachers and students in civil engineering may and should be interested in investigating, the following may be mentioned: Building construction, sanitation, municipal improvements, water supplies, drainage, waste and sewage disposal; water power developments, highway engineering, and highway transport. The importance of highway transport and of having it most economic as well as making the supply keep up with the demand, is easily recognized. Connected with this are many problems of outstanding importance which will require investigation for some years to come.

The value of engineering experiment stations to the service of the State and to engineers and to industries is quite evident in the states which have established them. They have been very effective also in the stimulation of instruction and study and of teachers and students and in the training of researchers and men of the research type of mind.

Every engineering student should seek an opportunity to join in this progressive movement. He can keep it in mind in connection with his studies and in his growing knowledge and appreciation of the progress of the State. The student assistantships and research fellowship which we expect to be established will give exceptional opportunities to students to learn research methods and to take advanced and graduate study and, at the same time, be paid for valuable investigations in the Engineering Experiment Station which will be of service to the State.

Worrying About It

The hardest work you ever do
  Is worrying about it;
What makes an hour resemble two
  Is worrying about it.
The time goes mighty slowly when
You sit and sigh and sigh again
And think of the work ahead and then,
  Keep worrying about it.

Just buckle up and buckle in—
  Quit worrying about it.
By work, not worry, you will win—
  Quit worrying about it.
A task is easy, once begun;
  Quit worrying about it.
It has its labor and its fun.
So grab ahold and do it, son—

THE ENGINEER'S PLACE IN SOCIETY

(By W. L. Trevathan, '24.)

The place of the engineer has been that of a servant to the public. And properly so. He has been at the bottom of nearly every progressive movement, the conceiver of new and progressive ideas, the founder of new problems and in most cases the one to solve those problems. He has been closely connected with practically every industrial development. His services are invaluable in that field, not only in the development of industry but in its maintenance after it has been developed. He must keep the machinery running and he must do it in the most economical way.

But the question is not so much what the engineer's place has been. It is rather what his position is to be, or should be, in the future. It is essential to the economic and social welfare of the engineering profession that he does not continue to hold the same place in society that he has held in the past. He must cease to dodge political and social responsibility. He must make his profession more appreciated by society than it has been in the past. He must raise his standards socially, politically, professionally, and financially. Where the lawyer is able to charge $25 for his signature to a petty paper, the engineer too often gives his free. Where the lawyer keeps the public in the dark concerning the secrets of his profession the engineer is forever trying to make the public understand his. I think that here the change should be made in the legal and not in the engineering profession. But as long as our laws are made by lawyers the lawyer will be the only man who can interpet them and there will always be an increasing amount of work for that profession.

The engineer must understand and appreciate the economic and social relations existing between his profession and other professions in order to appreciate fully his own position, as well as the positions of people in other professions. He should never permit himself, as many engineers do, to get in a rut. Many of them forget everything but their profession, and they forget a good deal of that. They forget that they have social and political obligations and responsibilities. It is through the performance of these obligations and the acceptance of these responsibilities that the engineer must bring the public to a realization of the importance of his profession, and its bearing upon our political, industrial, and social development, and I might even say upon our religious development, for it does have a bearing upon that.

What, then, should be the engineer's place in society? I say that his ambition should not fall short of the following:

1. To be true to his profession, honest with himself and others.
2. To understand his fellow men and their inter-relations with him, professionally, politically, socially, and otherwise.
3. To stand always ready to serve his fellowmen in any capacity in which he is capable.
4. To become a universal leader in his community.
5. To take his place side by side with other professional men in affairs of government.
6. To oppose any movement, regardless of whom its supporters may be, that he considers detrimental to the public welfare.
7. Never to let his financial aspirations thwart his better motives, but not to sacrifice his services for a mere pittance where great wealth is involved.
8. Never to become a slave to any class or clique.

North Carolina, Place For Civil Engineer Graduates

(Continued from page 1.)

he is given an opportunity to learn. In each of these cases he comes in contact with other men coming from probably all parts of the country, and he is, aside from his technical training, given a broader viewpoint. We impress upon this man that we want him to keep in mind that he is away from his State for only a short time, just as he was away from his home when a student here, and that the College expects him to come back in a short time to the State to take his place in his community. By a short time is meant a stay only long enough for him to acquire the knowledge he went to seek, for if he stays away too long he will hesitate to return, knowing he will have difficulty in adjusting himself to the many changes he knows he will find.

The Possibilities for Graduates

The possibilities open to young engineers to help North Carolina pursue its course of progressiveness are today almost without limit. The small towns in our State have been and will continue to be one of its greatest assets in this march. These towns are having called to their attention each day the need for improvements. This is brought about in one way: by good roads, roads which have been located by engineers and built under their supervision. For the citizens in one town see a neighboring town putting in electric lights, water and sewer systems, paving its streets, laying out parks, and various other municipal improvements. In a short time this town begins similar improvements, which are seen by its neighboring towns, which in turn fall in line, and the procession continues. All of this work must be done by the **CIVIL Engineer.** North Carolina has attracted the attention of the whole country by its good roads program. This does not mean progress in the small sense of giving the interstate motorist a hard-surfaced road to make his journey less tiresome, but its immediate and ultimate aim is to put North Carolina where its multitude of resources may be marketed. When these resources are to be developed, North Carolina engineers must be on the spot. The department points out to its students various fields into which the young graduat may go to help his State.

He is needed in the east to foster improvements in the small towns. He is especially needed in the great land reclamation districts; these are his problems at his own door. He is needed in the Piedmont section to enlarge and improve the sanitary conditions of our larger cities; to develop its new coal fields. He is needed in the west to build railroads; to develop the unlimited waterpowers of North Carolina, the power which in the future will furnish stored energy for practically all of our motive power, not only for automobiles, but the power needed at the factory, in the cities, and on the farms.

In the east, in the south, in the west he is needed to continue the work which has been set in motion by one of the best, if not the best, organized road building organizations in the country, an organization which has at its head a man who knows and appreciates the necessity of good engineering for a good cause. We want the young North Carolina boy to stay in his own State and go back home where he is needed and take his place, his place not to be that held by an employe, but an employer and citizen in the town.

A WORD OF THANKS

We wish to express our most heartfelt sincere thanks and deepest appreciation to each one who helped us and showed so much kindness in the horrible death of our dear husband and father.

Mrs. W. E. Tiddy.
Mrs. Mary Tiddy John.
Mrs. Katherine T. McNeill.
Sarah and Edwin Tiddy.

Auto Owners Must Eventually Pay For Highway Building

(Continued from page 1.)

proposed to pay for it. California, which has benefited as much, if not more, than any of her sister states by her bold program of highway development, is far from sympathetic toward proposals for additional bond issues to complete the State's system of roads.

Public Awakens

The general public, which is usually slow to comprehend the mystical ramifications of high finance, has, at last, awakened to the futility of attempting to create road systems by the bonding method. Pyramiding debts on states, counties and communities is a short cut to national bankruptcy.

But Mr. Ordinary Citizen is beginning to realize more than this. He appreciates the fact that bond issues are not only an expensive plan of financing, but that they do not equitably distribute the burden of highway financing between the user and nouser of the road.

It is significant and a good omen that this general sentiment is beginning to permeate the automobile associations of the country which have much to do with molding the attitude of their members towards legislation and financing schemes. The directing executives of these organizations are beginning to reach the conclusion that a great share of highway extension work of the future will principally benefit the motorist and that equity demands that the motor car owner foot the bills.

Gas Tax Proving Satisfactory

The experience of many states with the gasoline tax method of securing revenue for road construction has proved so satisfactory to both the road building agencies and the motorists that it is quite probable this scheme will be the basis of all financing methods for some time to come. Its simplicity, flexibility, ease of collection, small losses through evasion, and, in the main, its fairness, combine to make it a popular plan, and any scheme of taxation that is popular is bound to be successful.

Long-term bonds with their back-breaking interest charges are doomed, and the gasoline, or some similar form of direct tax, which insures a dollar's worth of work for every dollar expended, is here to stay.

STUDENT FORUM

Let's Be Good to the Visitors

Recently we have had as our visitors two high school basketball teams. The writer speaks of the boys from Chapel Hill High and Smithfield High, who have played our Freshmen here.

These two high school teams on coming to Raleigh were directed to the Auditorium, and then left to their own resources. Apparently, the only notice they received was during the game, and too often then it was with jeers that they were hailed. To all appearances, after the game they were forgotten.

Does such treatment leave a good impression on our visitors? Does it make them feel that some day they would like very much to come to State for their college education? High school athletes are the pick of the boys of this day and time, and if we can only make them want to come back to State, they will see to it that their friends at home will want to go with them. It would be an easy thing for us to help these boys, while in Raleigh, to pass their time pleasantly.

Let's see if we can't do a little better in this line, fellows. Let the county clubs keep their ears open, and when the team from their home town comes to Raleigh, let that particular club be ready to receive them and help them in any way possible. The writer's suggestion would be: find them a place to stay; take them on a trip over the city; show them our College campus; give them a feed at the College; do anything you can to make them feel that N. C. State is for them and that some day they will be for N. C. State. GOOSE, '27.

TRAINING AND EDUCATION

Are You Merely Trained to Follow a Chosen Profession, or Educated For the Business of Life?

(By Bruce P. Barber, '24.)

The principal function of a college is to develop men, not mere automatons. The world needs men of good character, who can think clearly and act precisely, who have good personality, and who can furnish good service for the public.

The stability of society depends upon the prowess and qualities of the people. Some people think that the thing we Americans are most interested in is money, but the real truth of the matter is that we do not value anything as highly as we do character and service. It matters not how good an engineer a man is, he will not advance in his profession nor will his standing in his community be raised if he is immoral or unreliable. Knowledge is of no value to the American engineer if he is not trusted and respected by his fellowmen.

Character has been defined as a bundle of habits. If a teacher who has the respect of his students has good, manly habits, and he will be respected if he has, he will inspire and develop like qualities in his students. Character is best taught by example and a teacher has great opportunities open to him to do great good. If this engineering college is to develop sterling qualities of character in the future leaders of society, every effort must be exerted to bring the students in contact with teachers that have high ideals and are capable of instilling these ideals in the students.

The public expects our College to educate men to think clearly and correctly. Is our college placing too much emphasis upon information which is based upon memory while neglecting the development of our reasoning power? The master engineer must be able to think independently and not run along in the same old rut. A well educated mind can best be acquired by a process of self-development.

An engineering college should try to awaken the inventive genius in each student. This can be brought about by giving the student new problems and give him an opportunity to take new paths, to try new tricks, and to go to a higher level of achievement. This inventive talent cannot be developed if the education of engineers is taken from a few textbooks. It frequently happens that good men who will not substitute memory for thought are dropped out of school, while those who remain have highly trained memories, but lack initiative and are also deficient in thinking powers.

A large percentage of failures among engineering students is due to the fact that they do not know how to study or are not interested in what they study during the earlier years of their course. There never will be a way of acquiring learning without study, and but few college students know how to study. Interest on the part of the learner is essential if he is to derive the greatest benefit from his course.

The most critical time in the career of the engineering student is during his freshman year. If a freshman is not interested in his work is there any wonder that he makes his studies subordinate to so-called campus activities? Inspection trips to power plants, factories, bridges, and other engineering work will tend to stimulate interest in the abstract engineering studies.

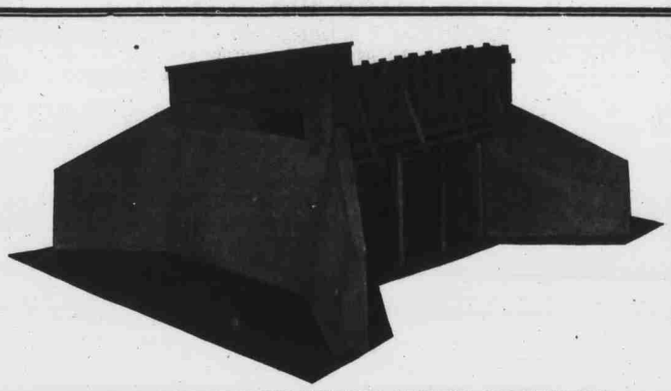
Engineers should have traits of personality which will enable him to deal with the broader questions of public life as well as qualities of character and superior mentality. Nearly all institutions of learning rate students only on academic performance. Engineering students should also be rated on attitude, disposition, initiative, leadership, co-operative ability, and mental calibre. Good qualities of personality can be developed only by observation, self-analysis, and constant effort. Personal ratings when added to the so-called "grades" are of value in discovering the student's talents.

If complete personal and academic records are kept each student can be kept at his highest level of achievement. By the present system the lessons are assigned to fit the "average student" and the slow but earnest student is often discouraged while the exceptional student is not worked to his capacity.

Engineering education is incomplete if it fails to impress the student with the opportunities of the engineer to render service to the public. The young engineer must realize that he does not do his duty as a citizen and as a member of a great profession if he confines all of his interests to his specialty and excludes the problems of public welfare.

This college will accomplish its purpose if it will give more attention to character building, guide the students in acquiring outstanding personalities, base the teaching on the ability of each student, encourage the development of talent, and develop men who realize that the greatest reward of an engineer is the opportunity for unselfish service to society.

B. P. B., '24.



A MODEL CONCRETE HIGHWAY BRIDGE, SHOWING CONSTRUCTION

The Builders

When a bridge is designed by Engineer Smith,
And built under Engineer Cathers,
They give all the credit for doing the job
To County Commissioner Slathers.

Bill Jones worked for months a problem complex,
And developed a thing of wonder;
The praise for producing this marvelous thing,
Was given to President Winder.

In our town is a work of public renown,
And is used by all of the people;
The glory for building this wonderful plant,
Is taken by old Mayor Simple.

A highway is built on a difficult site,
By the engineer's corps of the State;
The people are told when election time comes,
It was built by Governor Skate.

ART FOR ART'S SAKE

Folks readily say they enjoy things beautiful, but we wonder when we see the homes they dwell in. Both exterior and more often the interior strongly contradicts this statement of love for things beautiful. Sweet and peaceful music costs no more than jazz. A curtain hanging of restful tone is no more expensive than one of harsh reds and blues, each waging war against the other.

The artistic in each person must be developed and brought out just as the spiritual side of man needs to be cared for. To love art one must be around art. The love of color and harmony is brought out in ones better self by studying God's great outdoors.

A near-beautiful city is marred by scores of unsightly buildings. They house people and care for the commercial needs of the community, but the exteriors are just brick and mortar, or cold unfriendly walls of concrete, with openings here and there functioning as windows and doors.

It is here that architecture comes to the rescue of the unsightly city and transforms brick and mortar, cold concrete walls, wood and metals into masses of beautiful architectural design. Proportion and harmony is there, the doors invite you to enter, the windows seem like windows of the soul; from them you may look out on God's beautiful world.

And then we enter a typical home. "Be it ever so humble, there's no place like home." That may be true in its highest sense, but somehow very often the wallpaper, curtain hangings, furniture and pictures cry out and shout in prismatic tones of varied hues that the home seems far from being "ever so humble." The rainbow seems gone mad.

And once again architecture comes to the rescue. Here we see a living-room in Colonial style with its gate-leg table, windsor chairs, secretary, soft toned curtains with quaint valencia, an open fireplace, and a grandfathers' clock telling us the time. Well selected pictures hang there on the walls. Several etchings and water color sketches give warmth to the room, warmth that harmonizes with the ever-inviting fireplace with its andirons and brass-capped fire tools. Truly it is a living-room where one may live in happiness and comfort.

A room hideous with bulky furniture, a dining-room table centered, with perhaps a utility bed in the corner of the room, but nevertheless a bed, is changed to one of charm and grace as furniture of the William and Mary period takes its rightful place, supplanting mere masses of wood glued together to form chairs, tables, and wall pieces.

To know something of architecture is to know beauty. Pictures must be refined and fit their individual places on the wall in perfect relation to the floor furniture beneath them. Window curtains come into their own. They smile at you in friendly greeting as you enter the room, the chairs invite you to be seated, and the ever handy magazine rack or book trough stretches forth its arms with a copy of Ivanhoe, Shakespeare, or even a volume on relativity. The reading floor lamp near by lightens your way. To be sure the architect was there before you, aiding in the selection of furnishings for the new home. His training in things beautiful made it possible, together with your dollars and cents, and he has seen to it that what you have spent has brought the greatest artistic returns and you are glad you engaged the services of a competent architect.

—Anon.

CAMPUS IMPROVEMENTS

W. T. Cox, State College Football Star, Heads the Work

Mr. W. T. Cox, who finishes his course in civil engineering this semester, has recently been appointed Superintendent of Grounds. Mr. Cox will find that the Department of Civil Engineering will co-operate with him in this work. The Department has in its map files section maps showing complete topographical surveys of all the College lands, comprising around 600 acres. In addition to this the campus proper has been mapped. These maps show all the topographical features and details, such as sewer lines, water mains, electric light lines and steam heating pipes, etc. These surveys and maps have been made by the junior classes, covering a period of ten or twelve years. The Sophomores this semester will make a detailed cross-section of the quadrangle at the rear of Winston Hall. This work will assist Mr. Manning, the Landscape Architect, in determining the amount of excavation necessary to grade this area more uniformly so as to bring Winston Hall and Page Hall out of the ground.

The new service road being built to the south side of the dining hall and to the north of the athletic field with the material excavated from the new library site will prove a big feature in the campus development. All maps and information which we are able to give in assisting Mr. Cox in his campus development will be at his disposal.

Reversal of Sentiment

There once was a goofy young swain,
Regarded by girls with disdain,
Till at football he played,
Kicked a goal while fans prayed—
Now he keeps 'em away with a cane.

—Chicago Phoenix.

PROGRAM BLUE RIDGE CONFERENCE OUTLINED

Dr. Ellis and Dean Cloyd Return From Atlanta Meeting of Southern Regional Committee

Dr. Ellis and Dean Cloyd have returned from Atlanta, where they attended a committee meeting of the Southern Region of the Y. M. C. A. The committee is composed of two ministers, two alumni, two students, two student secretaries, and two representatives of church boards, along with the Regional Secretary. This committee met to outline the program for the Blue Ridge Conference at Blue Ridge this summer. From the program that was made, this conference will be the best in the past ten years.

This committee was appointed by the General Assembly of Student Secretaries at Esten Park, Colorado. It was an honor to this College to have two men there from this College.

Carolina is planning to send sixty-five men to Blue Ridge this summer. We led North and South Carolina in the number of delegates to Indianapolis, and we should have our share at Blue Ridge. We should have at least fifty men there. Every man on the Student Council should be there; the editors of the various papers, class president, departmental club presidents, the Y. M. C. A. Cabinet, and all the best athletes should be there. Everyone should be thinking now about the trip and make plans. The more men we have there the better influence we will have on the campus for clean living—an early start will insure a large delegation. Boost it!

Estimated Highway Costs and Traffic Requirements

(Continued from Page 1)

serve the immense truck and automobile through traffic between New York and Philadelphia. Without question this construction, though costing enormously, is justified by the needs of the traffic to be served. It is an illustration of the present trend in highway construction, and of the fact that the development in road building must keep pace with traffic needs.

Materials of Highway Construction

In the lecture given by Mr. McClintock, to which reference has been made in the preceding paragraph, particular emphasis was laid on the materials used in road building, their selection, tests, and the inspection of the road during the process of construction. The life of most of the high-type roads depends on the kind of materials used, and the care with which they are combined for the construction of the finished surface. This fact has been recognized by the College, and there is, in the Highway Department, a complete highway testing laboratory. In this laboratory the students are instructed in the selection of the best road building materials, and make the numerous tests to determine not only the fitness of the different materials for a particular type of road, but also the combination of those materials so as to produce the best possible results. The apparatus now in the laboratory is being added to from time to time. A rattler for the testing of paving brick has recently been bought and set up for the use of students. A Rotarex machine for the extraction of bituminous aggregates has been ordered. Several machines for testing stone will be purchased shortly. The equipment on hand and the apparatus to be purchased this year will permit the complete testing of all the materials used in road building.

Prizes in Highway Engineering

Warren Bros. Company, of Boston, Mass., are this year offering two prizes to the Seniors in highway engineering. The first prize is for $50, and the second prize for $25. These are given for the best and second best essays on the selection, test and inspection of the materials used in the construction of bituminous pavements. These prizes will be awarded to the successful competitors at the commencement exercises.

Graduate and Research Work

Arrangements have been made for graduate study in highway engineering at the College. The graduate work will be largely taken up with courses in highway transport and highway research. With the organization of the State College Engineering Experiment Station, and the expansion of the laboratory of the Highway Department, facilities will be available for useful graduate instruction.

29 MEN WANTED TO GO TO CHARLOTTE

Entertainment Will Be Furnished the Delegates in the Homes of Charlotte

On February 14th and 15th the Annual State Meeting of the Y. M. C. A. will be held in Charlotte. The State College Y. M. C. A. is entitled to 29 delegates to attend this meeting, and when in Charlotte they will not have to pay for anything, except a dollar for a banquet that is to be given to the delegates.

All men who are interested in the least in the forwarding of Christian ideals are earnestly besought to see Mr. King and make arrangements to attend this meeting and receive a good spiritual uplifting and also have a good social time during their stay in Charlotte.

Those men who went to the meeting during the Christmas holidays can tell you how much benefit they derived from hearing fine speakers and associating with some of the greatest leaders that the country has to offer to young men. Mr. J. W. Bergthold, Southern Student Secretary, is to be at the meeting to aid in the reorganization of the State Student Council. Bishop E. A. Penick of the Episcopal Church and Dr. A. G. Studer will be among the prominent speakers that are to be heard at this meeting.

Make your plans and let's go!

Evidently She Wasn't One

Woman Customer: "I want some California olives."

Saucy Saleswoman: "I only wait on prunes."—Everybody's Magazine.

Fellows, did you know Dr. Brewer's boys have organized a "Royal Order of Men Chasers"? Well, they have. Better wear your track suits next time you go.

NOMINATIONS TO CLOSE NEXT WEEK

February 8th Has Been Set Apart as the Last Day for New Entrants to the Contest

Friday, February 8, has been set by The Technician as the last day on which new entrants will be admitted in the Beauty Contest. This should give everyone time to send in the names of any person they wish to enter the Contest. After the date set votes will be accepted only for those who are already in and positively no new contestants will be admitted.

We are publishing this week a complete list of those who have already received votes. We want several times this number in the contest. Send in the names of any pretty girls that you know, so we can make this contest interesting.

CONTEST EDITOR'S COLUMN

We take great pleasure in announcing that Mr. John Moffit was the first boy to receive a vote in the beauty contest. Johnny thinks that the vote was sent in by someone at the State Blind Institute.

Miss Patsy Batch, of St. Mary's, was the first young lady to receive a vote.

A ballot box has been placed on the door of The Technician office. Drop your votes in it. Those unable to get to the ballot box may have the ballot box brought to them at their own expense.

Mr. Roy Cadieu wishes to state that as he is on the staff of The Technician he is ineligible to enter the contest. Nevertheless, he thanks his many friends who have desired to vote for him.

Why not send The Technician to your girl for the spring term. It will only cost you a dollar and anybody's girl should be worth that much. If you don't have a girl, send it to the other fellow's girl. He will appreciate it.

Come around to the office occasionally and pay us a visit. We are not so particular about who we let in.

Not very much has been said about the prizes of the contest. They are the most important parts. Since Toe states that the finances are rather low we will not be able to give away a Ford, as we had intended, but still the prizes will be something that anyone would be proud to own.

Modesty should prevent anyone from voting for him or herself. Judging by some of the fellows that have received votes we think they must be voting for themselves, as we do not understand how anyone could vote for them in a beauty contest.

C. E. STUDENT GETS FIRST VOTE IN BEAUTY CONTEST

Rare Honor Bestowed Upon a Deserving Young Man From Lee County

In the first Beauty Contest ever staged on the State College campus by and through The Technician there arose a youth so far superior to those around him, as far as good looks are concerned, that he was chosen to receive the first votes entered in the contest. This handsome Beau Brummel was none other than the right honorable John Roscoe Moffitt, of Sanford, North Carolina.

This gallant young man was very reluctant about receiving the compliments of his many friends, and his extreme modesty prevents him from making public any statement at this time about the contest that he so nobly initiated upon the State College campus.

It is with pride that we point this particular feature to you—another example of what the Civil Engineers are doing on the campus in the way of receiving outstanding honors.

NUMBER VOTES CAST IN BEAUTY CONTEST

For Most Beautiful Raleigh Girl

Miss Margaret Workman, Harrison Street.	210
Miss Emily Jones, State College Postoffice.	170
Miss Leone Warrick, Meredith.	70
Miss Ruby Sadler, Devereaux Street.	65
Miss T. K. Messick, Peace Institute.	30
Miss Patsy Batts, St. Mary's.	25
Miss Mary Thacker, 1031 South St.	20
Miss Elizabeth Purnell, Meredith.	10

For Most Handsome State College Student

Johnny Moffitt	145
G. D. Humphrey	100
C. E. Vick	70
J. N. Wall	55
A. S. Davis	30
F. S. Trantham	25
W. O. Huneycutt	20
J. C. Richert, Jr.	20
Edward Davis	10
D. B. Johnston	10
L. S. Pridgen	10
W. C. Creary	10
D. D. Barber	10
J. P. Tice	10
P. C. Beatty	10
G. W. Wray	10

RHO CHAPTER OF THETA TAU GRANTED TO N. C. STATE

Alpha Sigma Epsilon Succeeds in Securing Charter From National Engineering Fraternity

The Alpha Sigma Epsilon Fraternity (Engineering) that was organized at N. C. State College in 1917 has succeeded in securing a charter from the National Engineering Fraternity, Theta Tau. The installation will take place on the 16th of February. This charter was granted at the sixth biennial convention of Theta Tau that was held in Iowa City during Christmas. All alumni that have not been in touch with the organization are urged to write immediately.

Theta Tau was founded at the University of Minnesota in 1904, and has chapters in practically all of the larger universities of the East and West. The granting of a charter to Alpha Sigma Epsilon is a signal honor, and a recognition not only of the standard and character of the society, but also a tribute to the high quality of the work done by the Engineering School of N. C. State College.

To the Highway Engineer

Who builds a road for fifty years that disappears in two,
Then changes his identity so no one's left to sue?
Who covers all the traveled way with a filthy oily smear?
The bump-providing, rough on riding highway engineer.—Selected.

And it has well been said that the highway engineer belongs to "the army of God knows where."

RULES GOVERNING BEAUTY CONTEST

1. The contest will begin with this issue and end March 31, 1924.

2. Any person using the coupons which will appear in each issue of THE TECHNICIAN between the dates of the contest may vote.

3. Any girl who is a resident of Raleigh or a student at St. Mary's School, Meredith, or Peace Institute, and any boy who is registered as a student for the spring term at North Carolina State College is eligible for entrance into the contest, except:

4. Members of THE TECHNICIAN staff are ineligible to enter.

5. Voting shall be done ONLY by using the coupons clipped from THE TECHNICIAN as stated in Rule 2.

6. Each coupon, when properly filled in, will be accepted and credited to the entrant as TEN votes.

7. TWO HUNDRED FREE VOTES will be given with each new subscription for one term to The Technician, taken during the contest. ONE HUNDRED for the Most Handsome State College Student, and ONE HUNDRED for the Most Beautiful Raleigh Girl. (Price of one term subscription is $1.00.)

8. FIFTY FREE VOTES will be given with each pledge card that is paid between the dates of the contest, TWENTY-FIVE for the Most Beautiful Girl and TWENTY-FIVE for the Most Handsome State College Student.

9. The Contest Editor reserves the right to disqualify at any time any entrant to the contest.

10. Each week the names of fifteen boys and the fifteen girls who have received the highest number of votes to date will be published.

11. Prizes, which will be announced later, will be given to the boy and to the girl who receives the highest number of votes. In the event that two or more contestants receive the same number of votes, a duplicate prize will be awarded each. The pictures of the two winners of the contest will be published in the first April issue of THE TECHNICIAN.

12. All correspondence, votes, or subscriptions must be sent to the Contest Editor, THE TECHNICIAN, North Carolina State College, West Raleigh, N. C.

SUBSCRIPTION BLANK

Please send THE TECHNICIAN to

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For the Spring Term.

I am enclosing $..... ($1 per subscription) for which I am entitled to 200 Votes in the Beauty Contest. Credit these to—

Mr. .....(100 Votes)

Miss .....(100 Votes)

Address.....

The Technician
BEAUTY CONTEST
GOOD FOR
10 VOTES 10
(Name) Mr.....
Address.....
For Most Handsome State College Student

The Technician
BEAUTY CONTEST
GOOD FOR
10 VOTES 10
(Name) Miss.....
Address.....
For Most Beautiful Raleigh Girl

NEW PROGRAM AT N. C. STATE COLLEGE

The Ideals of State College: To Educate and Train Men to Be Leaders in the World

At the assembly period on Wednesday morning this week Dr. C. C. Taylor gave some of the underlying principles upon which the administration is basing the new program of State College. It is the determination of the administration to find out just what place in the life of our State this can play and is intended to play and how best it may perform its job.

Dr. Taylor said he was making these statements according to a desire of Dr. Brooks. He went on to analyze the function of State College, how it can best perform this function, and some of the plans of the College looking toward this end. Dr. Taylor asked, "What is the function of this College? To make farmers and engineers? No! They aren't made in educational institutions. Its function is to educate men; most of whom expect to follow the professions of farming, engineering and business, some teachers and experts.

"How can State College best perform this function? By teaching mathematics, English, mechanics, economics, farm crops, and so on? No! You must teach men. True enough, the men have got to know how to handle these things. But to run each fellow that comes here through a prescribed course of classes is not to teach men. If you don't lead the man out, develop his initiative talents and personality, a knowledge of all the things in the world won't make him a success. Therefore, chief of the functions of the institution is to develop the initiative, character and personality of men, place them in touch with the world in which they must live and labor, and rest assured that they will play the part of men.

"Here are some of the things we are going to do at State College looking toward the performance of this function of training men to go out and be leaders in agriculture and engineering and put North Carolina in her rightful place in the lead of all the states in the Union, and make her known throughout the world:

"1. First, a reduction of the hours men are on class, in order that they may think and study. This by no means is intended to give the student less work, but that he may have time to think and gather information on the problems presented during the class period.

"2. Improve the teaching by tying it up with research and giving teachers time for research and professional improvement, so that the teacher will have an enthusiastic message for his class every time he meets them.

"3. Build and equip a library that will be the best in the South at an institution of this kind.

"4. Improve scholarship by giving time to the best, sympathetic assistance to the average, and elimination of the sluggard.

"5. The development of a physical education and athletic department that will be the best in the South and help all these other things.

"6. A religious program that draws men out and develops their character. Not compulsion to make men attend a fifteen-minute chapel, in which time nobody can deliver a real message, and which every man looks upon with a sense of dread, causing more irreligion than religion among the students. In this program we are going to look for the Y. M. C. A. to take its rightful place as the department of the institution which will undertake the development of the moral and religious character of the men who are trained at this institution.

"All this ought to mean great things for the future of N. C. State College. Southern institutions have lagged in the past, and do now. The day has come to level them up to the standard, and some institution must lead. North Carolina leads the South in agriculture and industry, and this is the College that should reflect and develop that leadership. Fifteen years from now should see five thousand students here, with equipment, scholarship, research and reputation which will make it the Mecca for all who seek the best that such an institution anywhere can give. The student body and the faculty is the Moses for all future generations at the College."

THE COLLEGE CALENDAR

(February 3-10)

Sunday

1:30—Friendship Council meets at Y. M. C. A.

Monday

6:30—Bible Study leaders meet at Y. M. C. A.
6:30—Freshman Friendship Council meets at Y. M. C. A.
8:00—Cosmopolitan Club meets.

Tuesday

12:00—Technician staff meets.
6:30—A. S. C. E. meets at the Y. M. C. A.
6:30—Ag. Club meets at Patterson Hall.
7:00—Textile Society meets.
7:00—Physics Club meets.
8:00—Basketball team plays Florida University at Raleigh.

Wednesday

6:30—Bible Study classes meet in dormitories.

Thursday

4:00, 6:30, 8:15—Movies at Y.M.C.A.
6:30—Poultry Science Club meets.
8:00—Basketball team plays Stetson University at Raleigh.

Friday

6:30—Pullen Literary Society meets.
6:30—Leazar Literary Society meets.

Saturday

12:00—Y. M. C. A. Cabinet meets.
8:00—Basketball team plays Wake Forest at Raleigh.

Some of our Freshmen are shaving daily and applying rouge since the beauty contest is on.

HYDRAULIC LABORATORY

Rocky Branch Has Been Surveyed and Will Be Utilized for This Purpose

The Department of Civil Engineering has seen the need many years for establishing a hydraulic laboratory which would be used in demonstrating experiments associated with the teaching of hydraulics.

Now that we have an engineering experiment station assured, the need of this hydraulic laboratory is more manifest. There is no need that the College should purchase a site in order that we may have a storage reservoir. Rocky Branch, running through the whole extent of the College farm, furnishes an admirable site for this development. This stream can be dammed at a nominal cost. It will furnish a lake of ten or fifteen acres, with a sufficient amount of storage water. This hydraulic laboratory will be used by all students taking the work in the Civil Engineering, Electrical Engineering and Mechanical Engineering courses. A tentative survey has already been made by the Senior Class in Surveying. A more detailed survey will be made during the coming semester. The data collected will be forwarded to Mr. Manning, who will arrange his development of this part of the campus so as to harmonize with this project.

THE CAMPUS TO BE GREATLY BEAUTIFIED

Dr. Brooks Has Set Out to Make Our Campus the Best Possible

By H. L. Medford, '24

According to the plans of Mr. Warren H. Manning, landscape architect, this college is soon to be credited with the most beautiful campus in the State. The improvement of the campus is one of the major essentials in the construction program now being put through at this institution, and according to all available information it will be only a relatively short time until these plans will have materialized.

The college has employed W. T. Cox as supervisor of construction, who will soon begin to develop the area between Holladay Hall and 1911 Dormitory. This section has been completely mapped with new drives and walks indicated, and according to Mr. Cox grading will begin at an early date. As rapidly as possible after this section is finished, the entire campus is to be improved, including the new development south of the railroad.

At the extension of the drive east of Sixth Dormitory a decorative concrete bridge will span the railroad to allow passable of vehicles, while on the west of Sixth a bridge will be constructed for the benefit of pedestrians. During the coming summer concrete walks will replace what is now known on the campus as "nails" and the various drives are to be paved. In addition to this a service road will be opened running westward from the new dining hall.

The policy announced by President Brooks, that whenever practical students should participate in the work done by the college, is being carried out in the landscape development. The plans and topographical maps that have been needed were made by the students in the Civil Engineering Department, and in the future all engineering problems involved, both in the field and office, will be solved by the students under the supervision of Mr. Cox. This is really an asset to the students in that it affords them practical experience with problems that are likely to be met with after entering their chosen profession.

Cox graduated from this college with the Class of '23 in civil engineering and his ability to carry out the work which he has chosen is quite evident. The least that we can say is that he is going to show us the most beautiful and artistic campus in the State.

SPRING BIBLE STUDY LAUNCHED AT STATE

Spring Bible Study at State College was launched Wednesday with great enthusiasm. The first assembly period of the Spring Term was given to a presentation of the program to the whole student body. The policy was outlined by Chairman Buck Morris, followed by Dr. Ellis and Dr. Taylor, who are to each take five weeks in directing the Bible leaders' group.

Wednesday night the Bible Study feed was given to all 100% men. There were 146 100% men entitled to attend this feed, nearly all of whom were there "Johnny on the Spot." After the feed a canvass was made of the dormitories for men to enroll in the Spring Discussion Classes. A preliminary count showed 200 men reported as enrolled. Many men were away from the College because of the attractions in Raleigh. At this rate we should enlist at least 500 men and make this the record-breaking term of State College Bible Study. Every man be sure that you have a part.

The Surveying Engineer

With field glass an' transit an' compass an' rod;
With level an' plumb-bob an' chain;
With technical phrases,
An' grit that amazes;
With hustle an' muscle an' brain;
You will find him a-pluggin' for all he is worth—
A-cuttin' an' slashin' his way,
Anywhere 'neath the sun,
Where there's road to be run—
The man of the Highway Survey!

He's laying out "tangents" an' jungle an' swamp,
O'er mountain an' river an' vale;
From Havana to Nome,
An' from China to Rome,
You will find him a-blazin' the trail!
An' he cares not a rap what the hardships may be;
How rocky an' thorny the way,
With his transit an' bob,
He's the man on the job—
The boss of the Highway Survey!

He's laying out "tangents" an' "curves" an' "grades,"
An' marking each move with a stake;
An' he's snaking his chain
Over mountain an' plain,
Through bramble an' briar an' brake.
Oh, his fights are not won with saber an' gun—
He follows no flag to the fray;
But he merits such praise
For the part that he plays—
The man of the Highway Survey!

—J. E. Hungerford.

Daily Dozen Thoughts

(By Walter Camp.)

I know that happiness comes from health, not from wealth.

If I have a stake in life it is worth playing the game for all there is in it.

I know that envy, jealousy and wrath will ruin any digestion.

I know that the only thing I really own is my body, and that it is worth good care.

I know that imagination, courage and concentration will conquer most obstacles.

I know that nature will not stand for constant overdrafts any more than my bank.

I know that my nose and not my mouth was given me to breathe through.

I know that worry is the most unhealthful thing in the world.

I know that anger poisons the system.

I know that I have a birthright of health and will not exchange it for a mess of disease.

I know that if I increase my exercise for every addition to my salary I shall be better able to enjoy my salary.

I know that physical exercise is better for the appetite than a good cook and costs less.

AMERICAN ROADBUILDERS' ASSOCIATION ANNUAL CONVENTION AND ROAD SHOW

(By L. E. Wooten.)

Thirty thousand highway officials, highway engineers, road contractors, and others interested in road building, poured into Chicago for the twenty-first annual convention of the American Roadbuilders' Association and Road Show, January 14-18. Coming from every State in the Union, Canada, Alaska, England, Japan, China, New Zealand, and Sweden, these people impressed upon the world two salient facts: First, there is an unprecedented national interest, as well as international interest, in the highway program; second, the world is eager to learn of the new methods of construction, design and financing highways and the new machinery and equipment being built in this country. To show the tendency of the highway program we have only to mention the fact that the attendance at the convention last year was 6,000 as against 30,000 this year.

It was a distinct pride for every North Carolinian especially to note the prominent part played by this State. With Frank Page as president of the association, Chas. M. Upham show manager, C. N. Connor construction engineer for our Highway Commission, and Joe Spears, a State College graduate, also with the Commission, having a prominent part on the program, it was a well established fact that North Carolina was on the map.

The papers presented at the convention bear out the fact that new methods and principles are rapidly being developed in highway work, some of which may substantially reduce the cost of road building where traffic is not so heavy.

The paper read by Mr. Spears was along this line, and showed how the sand-asphalt road laid in Eastern North Carolina is holding up in perfect condition. He gave the detailed cost of construction, it being laid by State forces, and the cost is about $1.40 per square yard, or about one-half the cost of concrete. There are two courses, the base being 3 inches, containing 92 per cent sand and 8 per cent asphalt, while the upper course is 1½-inches and has the same mixture as is generally used in sheet asphalt.

This paper was prepared by E. R. Olbrich, National Research Council, Washington, D. C., but in his absence was read by Mr. Spears, who handled his subject in an excellent manner. Slides were shown, the details of construction being made quite clear.

Mr. B. F. Pripmier, Testing Engineer, Illinois Division of Highways, gave an interesting paper on "Cutting Down the Curing Period of Concrete Roads." He has made extensive tests and investigations and has proved, apparently, that by applying two and one-half pounds of calcium chloride per square yard of surface the curing period is cut in half. This costs about 5 cents per square yard, and has been used on nearly 1,000 miles of concrete road in Illinois, and according to Mr. Pripmier's estimate has saved the traveling public enough time and distance on detours to amount to $900,000 in 1923.

Many other valuable and interesting papers were given which we cannot discuss here.

At the Road Show proper, which was held in the Coliseum, the Wilson and Grier Buildings road machinery of all makes, kinds and sizes was displayed. There were 200 carloads, valued at $1,250,000. All of this was brought through the busy streets of Chicago and placed on exhibit between midnight Saturday and Monday noon.

The U. S. Bureau of Public Roads had an educational exhibit. They had a number of interesting models, displaying the most modern ways of road building by the newest machinery, also a miniature impact machine pounding away on a concrete slab, several samples of soils with their mechanical analysis and how they absorb water, and a graphical representation of the strength of concrete derived by varying only the quality of the sand. The poorest grade of fine wet sand when used with the same quality and quantity of cement and stone gave only half the strength as the best grade of dry, coarse sand. Engineers would do well to take note of this.

It was indeed a busy program the entire week, but "all work and no play makes Jack a dull boy," and there were no "dull boys" in Chicago, as Mr. Upham and his entertainment committee had plenty of entertainment for all. The stag party, the stag banquet, and the informal supper-dance and cabaret at the Chez Pierre Club were distinctly enjoyable features.

A PART OF THE CIVIL ENGINEERING FACULTY

Left to right: Prof. C. L. Mann, head of Department; Prof. Harry Tucker, Highway Department; Prof. Ross Shumaker, Architectural Department; Prof. L. E. Wooten.

WINSTON HALL, THE HOME OF THE CIVIL ENGINEERING DEPARTMENT

Proverbs of the Civil Engineer

Assume a Bench Mark if you have it not.

All is not Polaris that glitters.

Spare the rod and spoil the profile.

There's many a slip 'twixt the sight and the book.

A transitman's wave is as good as his word.

Measure in haste and repent in the office.

A steep grade is rather to be chosen than great bridges.

The lawsuit oft proclaims the contractor.

A good rubber turneth away wrath.

The better the description the better the deed.

What is missing in the tracing will not come out on the blue-print.

There's no use coloring over spilt ink.

It's a poor scale that won't read both ways.

Faint ink never won fair blue-print.

Too many crooks spoil the plot.

Never All Bad With No Good

Ben J.'s Girl: "You know, somehow, all the boys from the C. E. Department seem different."

Ben J.: "Why, that's perfectly logical. They are all civil."

SHORT COURSE FOR LAND SURVEYORS

A New Course Which is Now Being Offered by the Department of Civil Engineering

The Department of Civil Engineering is now sending out letters to the hundred and seventy-five or more land surveyors throughout the State. This letter announces the possible arrangement of a one-week short course in land surveying. A self-addressed stamped envelope is enclosed, requesting all surveyors who may be interested to respond. If a sufficient number to warrant the course responds, the work will be given some time during the latter part of February or the first of March. Among the subjects of instruction will be the use of the Planimeter in the calculation of land areas. Among the speakers engaged to talk to this class is Colonel Boyden, of the Portland Cement Association. Further subjects of instruction and lectures will be announced later.

The Engineer Men

They keep things a-boomin',
Wherever they go;
They start deserts bloomin'—
An' make cities grow!
Brave knights, with their blue prints,
An' *magical* pen;
They give the world new *tints*—
The Engineer Men!
No matter how rundown a village may be,
In *vision*, a blossoming *city* they see;
Progressive an' prosperous—thriving an' gay—
An' it is their business to make it that way!
They're always a-bustle,
With "ginger" an' "snap";
Their job's to put hustle
In' towns on the map!
They build all the "thrive" ones—
An' build them to *stay*;
Their job's to make *live* ones—
An' keep them that way!
No matter how *hopeless* a "project" may seem,
Wherever's a hope-ray, they're glimpsing the gleam;
They corner the "glimmer," an' ere they are *through*,
Do they put the job "over"? *I'll tell you they do.*
They're "bombing the trenches,"
In sunshine an' rain;
There's always "hard drives,"
An' objectives to gain.
Brave knights, with their lances—
Town-builders, true blue—
They rout "circumstances"—
I'll tell you they do!

—J. E. Hungerford.

A Senior's Legacy

To whom it may concern:

I cheerfully recommend my old girl to any undegraduate young man wanting a suitable dating companion for next year.

She is a good dancer, physically and morally.

She is a good looker.

She is a good listener.

She is not too good.

She is an excellent pedestrian.

She is a light eater, except on Sunday.

She is a girl of deep emotions, whom only YOU will be able to thrill.

She has, to the best of my knowledge, absolutely no ideas of her own on any subject, except YOU.

My sole and simple reason for quitting her is that I am leaving school. Treat her right—she likes to be treated.