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of NORTH CAROLINA STATE COLLEGE

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Prof. Winkler Speaks To Chemical Engineers

At the regular meeting of the American Institute of Chemical Engineers, Prof. E. W. Winkler of the Electrical Engineering Department, spoke on "The Need for Trained Safety Men in Industry." Prof. Winkler stressed the fact that State College graduates are noted for their proficiency in keeping up with the newer developments and methods to reduce loss and inefficiency. Safety engineering is a very important part of the education of all Engineering students here.

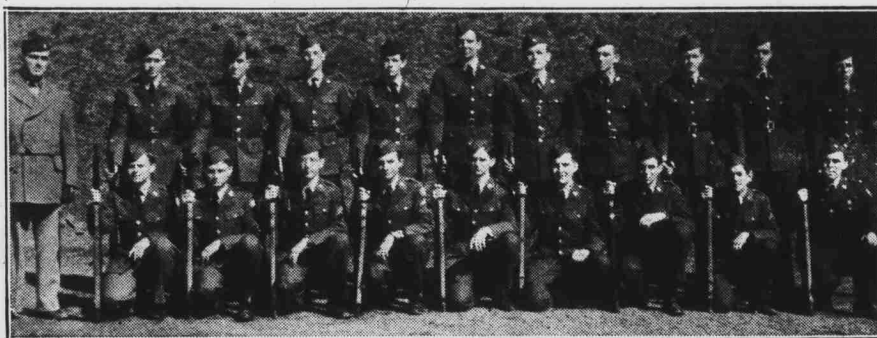
A comparison of the number of people killed and wounded in the war with the number of people killed and injured in the United States during the same period is very illuminating. From December 7, 1941 until October 1, 1944, 102,608 men in the armed forces of the country were killed, 200,760 wounded, 57,990 were missing, and 57,017 were prisoners of war, making a total of 453,300. During the same period, accident figures were: 270,000 killed and 28,000,000 injured, of which around one million were permanently disabled. All of these were not in industry, but 52,000 of the total number of workers killed were on the job when killed. With 11,000,000 men injured in addition to the 122,000 killed, Prof. Winkler showed how much manpower would be available if the number of accidents were cut down. People ordinarily have three reasons for explaining accidents: (1) Supernatural forces, especially prevalent among the Negroes. (2) Predestination and (3) Carelessness. Naturally Safety Engineering is concerned with the last of this list.

Many people think in terms of injuries instead of accidents which is one way of considering the problem. In order to prevent the injury we must prevent the accident. As to the causes of an accident, two main classifications are listed: (1) Unsafe Acts and (2) Unsafe Conditions. Examples of the first would be: Running up stairs, driving a car at a very high rate of speed, and (3) ignoring other common sense safety rules. Examples of the latter would be slippery pavements, fire hazards, equipment in poor operating condition, and others not quite so obvious. Unsafe Acts can further be identified with the environment in which the person is working as well as with the person's heredity. For instance, a man with a violent temper would hardly be considered safe in an explosives factory. Conditions of environment can be remedied by the company to a large extent. Unsafe conditions are remedied by Safety Engineers, in cooperation with the management, the purchasing department, the designing engineer, as well as the workers themselves. A surprising fact is that 50 per cent of the unsafe conditions and acts can be eliminated without expenditures of money, while 48 per cent can be eliminated with proper engineering. Safety engineers still classify 2 per cent of the accidents as acts of God.

During the lecture, Prof. Winkler showed a movie short, "Invisible Red Ink." The film stressed the fact that accidents were costing the industry \$650,000,000 per year, a fact not yet too well known. At an accident the thing to do is to apply the "W formula": Who was it? What was it? When was it? Why was it? Why didn't the person be more careful? What can be done to prevent future accidents?, and

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State College's ROTC Rifle Team



STATE COLLEGE'S ROTC RIFLE TEAM WINS SOUTHERN MATCHES

N. C. State College's ROTC rifle team (pictured above) won first place in the 1945 Fourth Service Command ROTC Gallery Rifle Competition and will compete in the National Intercollegiate Rifle Team Matches to be fired during the months of March and April. Members of the team are shown here with their coach, Lt. Frederick S. Woodruff, personal affairs officer of the State College Department of Military Science and Tactics. Front row, left to right: Lieutenant Woodruff; D. M. Parker, Jr., New Bern, manager; Lenwood Edge, Fayetteville; E. R. Conway, III, Greenville; J. O. Dayvault, Jr., Kannapolis; W. P. Blanks, Jr., Raleigh; Ross L. Fogleman, Jr., Greensboro; J. Hubert Gilbert, Catawba; J. R. Rankin, Greensboro; and J. Edgar Williams, Wilmington, captain. Second row, left to right: Jack R. Phillips, Greensboro; R. D. Farrell, Gastonia; R. A. Morrow, Albemarle; L. C. Hasty, Laurinburg; W. R. Freshwater, Jr., Burlington; Webster C. English, Winston-Salem; W. O. Johnson, Salisbury; T. Bryant Williams, Asheboro; W. F. Kampschmidt, Greensboro; and Paul T. E. Rhodes, Statesville.

Pi Tau Sigma Active In M. E. Department

WSSF Contributions Now Approach \$700

Contributions from students and faculty and Student Government (representing all the students) have now reached the sum of \$692.00, which isn't bad considering the reduction in enrollment and the number of men on the faculty. Lt. (jg) Jacob H. Tinga, who is "flying transport over the watery South Atlantic and the jungles of Brazil," hearing of the campaign, sent an unsolicited contribution.

From some source eight more dollars must be found, because Mr. L. L. Ivey, manager of the Student Supply Store, has promised a contribution conditioned on \$700.00 being raised from other sources.

This morning five dollars was received from a Dean and three dollars from Clark Hospital. All those who wish to contribute and have not done so are urged to get their money in to Earl G. Bowen, Chairman, so that Mr. Ivey's conditional gift may be secured.

Veterans Association Elects Officers

William C. Roe of Concord has been elected president of the State College Veterans Association, an organization of students who are veterans of World War II.

Other officers of the new club are Cecil D. Connell of Stanfield, vice president; William Thornton Richmond, Va., recorder; and J. D. Evans of Kenly, treasurer.

Objectives of the association are to provide academic aid, including tutoring, the holding of study and discussion groups, and participation in student activities; to furnish financial assistance, including the granting of short term loans to veteran students in advance of the receipt of their first check under the provisions of the "GI" Bill of Rights; and to arrange social affairs, such as securing speakers for the meetings, and the holding of picnics, dances, and other entertainments.

After one and one-half years of inactivity the State College chapter of Pi Tau Sigma, honorary Mechanical Engineering Fraternity, is being revived. Through the efforts of several faculty members and students in the Mechanical Engineering Department, plans are being formulated for the renewal of the charter of the local chapter of the fraternity.

The object of Pi Tau Sigma shall be to foster the high ideals of the engineering profession, to stimulate interest in coordinate departmental activities, and to promote the mutual professional welfare of its members.

In 1941, through contacts made within the American Society of Mechanical Engineers by National President Degler with Professor Robert B. Rice, head of the Mechanical Engineering Department, interest was created and desire formed for a chapter of Pi Tau Sigma within the Department of Mechanical Engineering at North Carolina University. Later in 1941, Professor Rice received the necessary information for the requirements of a charter. Student interest became active. The petition for a charter was completed in March, 1942. Pi Alpha Chapter was installed March 27, 1942, with a charter group of sixteen men, headed by the following honorary members: Chancellor J. W. Harrelson, Dean of Engineering B. R. Van Leer, Professor R. B. Rice, and B. L. Vaughan, Dean of the School of Engineering.

Pi Alpha Chapter took its place on the campus and was accepted as the driving force behind student activities in the Mechanical Engineering Department. Its efforts were ever directed toward the retaining of this leadership. The call to the armed forces of most of its student members necessitated the closing of the chapter later in the year.

Many men are now returning to school, or will in the near future, from the armed services, and the future of Pi Tau Sigma on the campus is rosy indeed. All juniors and seniors in Mechanical Engineering, and seniors in Aeronautical Engineering who are interested in becoming members of the

(Continued on Page 3)

G. H. Satterfield Lectures On Nutrition

"If you would have positive, buoyant, better - than - average health, if you would preserve the characteristics of youth and delay the onset of old age, plant a garden, and eat the products," declared G. Howard Satterfield, professor of biochemistry at State College, in an address to the Men's Horticultural Club in the State College Greenhouse last night.

Pointing out the fact that a large number of young men who have been rejected for military service due to conditions produced, at least in part, by malnutrition, Professor Satterfield said that close attention to the food values of garden crops and careful supervision of the diets of children as well as adults will aid in avoiding a repetition of the situation of malnutrition which followed the economic crisis around 1930. America, he said, produces a greater abundance of food than any other nation, and a study of food values and dietary habits is essential for the proper utilization of the food supply.

Touching upon all the classes of food and showing by means of charts the constituents of various garden foods, Professor Satterfield placed spinach, once heralded as the foremost green vegetable, at the bottom of his chart. "Spinach," he said, "is a perfectly wholesome food, but its nutritional value has been greatly exaggerated. We now know that in spite of the presence of liberal quantities of calcium and iron, these elements are poorly utilized from spinach."

The speaker listed green, leafy, and yellow vegetables—known for their high vitamin and mineral content—as "protective foods," because "they delay the onset of old age and preserve the characteristics of youth," he said.

Professor Satterfield was introduced by Irving Hall.

Registration

Approximately 550 civilian students have registered for the spring term at State College, it was announced yesterday by Registrar W. L. Mayer.

About 70 veterans of World War II who are studying under the provisions of the "GI" Bill of Rights are registered as civilians. Mayer said.

In addition to the civilian students, around 400 young Army men in the ASTP and about 250 Navy officers studying diesel engineering are stationed on the campus.

State College's pre-war enrollment was 2,600.

State College Team Wins First Place In Rifle Meet

Local Sigma Xi's Hear James B. Macelwane

Through the use of earthquake waves as indicators, seismologists are able to surpass geologists in obtaining information regarding the deeper structures of the earth that will never be visible under the light of day, declared Dr. James B. Macelwane, S. J., director of the Institute of Geophysical Technology and professor of geophysics in the St. Louis University, in an address at State College.

Dr. Macelwane, speaking at a meeting of the college chapter of the Society of Sigma Xi, pointed out that practical or applied earth-physics works in the crustal layers of the rock, seeking oil pools, ore deposits, solid sites for bridges, dams, and other massive works of man.

"Pure" seismology delves even deeper, obtaining a sweeping picture of the earth's general structure from surface to center by mathematical studies of earthquake waves, the speaker explained.

Dr. Ralph W. Cummings, president of the college chapter of the Society of the Sigma Xi, presided and introduced Dr. Macelwane.

State College's ROTC rifle team won first place in the 1945 Fourth Service Command ROTC Gallery Rifle Competition and will compete in the National Intercollegiate Rifle Team Matches to be fired during the months of March and April, it was announced by Col. Douglas N. McMillin, commanding officer of the State College Department of Military Science and Tactics.

Announcement was made last week that two rifle teams from State College's ROTC unit captured second and third places for the William Randolph Hearst Trophies in the Fourth Service Command Area. It was the first time in the history of State College that rifle teams have won two Hearst trophies in one year.

The Citadel and Georgia Tech placed second and third, respectively, in the gallery rifle competition and will compete in the national matches.

Other institutions which won honors in the matches, in the order of their ranking, are: Mississippi State College, fourth, the University of Alabama, Clemson College, the University of Florida, Davidson College, and Tuskegee Institute.

The N. C. State team was coached by Lt. Frederick S. Woodruff, personal affairs officer of the State College Department of Military Science and Tactics.

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By the Students



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State College

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the Act of March 3, 1879.

Isolationism

American isolationism did not have its origin in the philosophies of George Washington and other early American statesmen but first took root and flowered during the nineteenth century. Dr. Dexter Perkins, University of Rochester history department chairman and authority on American history, declared recently at the University of Cincinnati.

"The idea that the United States should enter into no alliance with any other nation was less firmly held by the founding fathers than is generally supposed," Dr. Perkins said today. "The success of the 13 colonies in the Revolution was in substantial part due to the alliance with France.

"Washington's farewell address, while in general isolationist in tone, speaks of 'temporary alliances for extraordinary emergencies.' Alexander Hamilton and other Federalists were ready for a virtual alliance with Britain against France in 1798. Jefferson, author of the phrase, 'no entangling alliances,' was ready to 'marry' the United States to the 'British fleet and to the British nation,' if France installed herself in New Orleans.

"Monroe, Jefferson, and Madison were all ready to consider common action with Great Britain to protect the Spanish-American colonies from possible reconquest. In truth, the isolationist philosophy grew and flourished in the long period of the nineteenth century when there were no general European wars. In the periods where such general wars existed, at the close of the eighteenth and the beginning of the nineteenth century, and again in the years 1914-1918, and 1939-1941, the breakdown of the strictly isolationist point of view occurred in every instance.

"A general European conflagration has always engaged the passions of the American people and has sooner or later involved them in actual armed conflict. These involvements were comparatively minor in the case of the war of the French Revolution and of the Napoleonic period and brought about no close association with any other power.

"But the contrary was the case in the wars of the present century. On the idealistic side, the notion gained ground that the United States had some responsibility for and a direct interest in helping to consolidate peace. From

GLEANINGS

School days, school days, dear old slidin' rule days! Oh me, back at the old grind again, and feeling very patriotic about the whole thing. Oh yeah! Well anyway, Chapel College had a vacation.

It certainly seems that a marvelous peace has settled over this campus of ours—well what do you know, Pratt & Whitney has gone (sob). What a uhhhh, pity, yeah, that's the word.

And they tell me that some of the boys had quite a time trying to get Lum Edwards out of the bowling alleys in the middle of last week. It seems that he reallllly wanted to talk to the girl behind the fountain. What for???—And "hearsay" has it that our boy Gant's date of Wednesday night last got, shall we say, out of hand. We hear that everybody involved, and nearly everybody was, had a fine time. Yes sir, that Gant really knows how to pick out the dates.

And speaking of that Wednesday night we are reminded of the fine time that was had at the Sigma Spee house on said night. Stoney must have had a roaring business Wednesday afternoon. And hardly a Sig Ep was in evidence. Don't know where they could have been but you can bet your bottom dollar they didn't waste the night. No sir, not the Sig Ep's. They were even using coffee cups before the night was done (and it really was).

Sometime ago Carl Britt, gullible young freshman of first floor Bagwell, hastily made a very unique exit from his room when "Madman" Klutz exhibited a fake fit for his particular benefit. The "Britt Express" completely annihilated three boys before he could clear a path for said onrushing express. Britt was so, shall we say, alarmed that he began looking for another roommate to spend the night with him. He still thinks that Klutz is an applicant for Dix Hill. . . . We're really "sorry" that that little dirt about "Rattlehead" and Richkus in our last edition was so hard for them to explain to their "certain someone's." It seems that "Rattlehead" had to make a special trip to his home town to smooth things over a bit. With the absence of the handsome Rattleade, the fairer sex of Raleigh will have to resort to hitherto unheard of means of "amusement."

A one act play entitled "We Are All Alone" was quietly presented at the Little Theatre weekend before last. From all reports it was quite successful. Funny thing about this play was that nobody attended. At least that's what the cast thought. The cast included Bob Freeman, E. C. Tatum, Pitt Beam, and three unknown angels from Meredith. This combination all adds up to have the makings of a great "love" drama, and the boys that witnessed the play believe that their little act would go over big on Broadway.

That person Parker certainly must be lazy (that's not the best word). "They say" that when he goes on a, well, on a party that he makes his girl do all the work. Well, as that Bacall girl would say, "It's even better when you help."

Last term Guy Boger and Ralph Calhoun certainly did their part to help relieve the manpower shortage at Meredith. We hope the boys "talents" weren't wasted. The girls probably won't get cold in this warm weather anyway. Meredith girls cold????? Who said so? Not me. I wouldn't be aknowing.

Have you heard the record "Candy"? Dandy, isn't it? And speaking of records, have you heard about the purple cow that "Mood Indigo"? Oh me, no moo of that!

And we wonder what "Walter" will do now that P&W is vamoosay? Lonesome? Oh well, life's little trials.

It must have been that some of the Delta Sigs other than Gant had a good time "between" terms. The next day there was not a complete deck of cards to be found in the place. Now don't tell me that they spent the night at a nice calm game of bridge. They probably think that it's a game involving sets of teeth. What do you think it is? A card game?

And speaking of teeth, we've just about beat our gums to a pulp, so we'll stop this mess until this same time next week when we hope that we'll have some more blackmail that's publishable. See you then.

Mood Indigo. Ohhhhh.

—STAFF.

another point of view, war in Europe was more and more widely thought to endanger American security. Both these points of view are more prevalent today than ever before. They make necessary a positive substitute for the isolationist point of view."—ACP.

Chat by Pat

Yawn—well, at the moment we all have spring fever, but who knows what tomorrow will bring. Possibly snow! Snow was very out of season two years ago when young ladies in "salad" hats and white or bright dresses tripped out of church on Easter morn to find it. Right now it looks like rain, but who knows?

I certainly did enjoy my vacation. How 'bout you fellas? All kidding aside, I didn't mind not having a vacation at all. There are plenty of fellows our age that had to give up college and I don't guess they get half the vacation we do, so I'm not going to complain.

Seems funny not to have the old P&W girls here. Miss them dreadfully. But here's wishing them the best of luck.

Heard from a former State "Joe" the other day. Seems he's in a rest camp after a hard game of war with the Japs. Said he'd received several copies of the "Tech" and he, along with a whole gang of N. C. boys had a good long session with them. Makes our effort here worthwhile to us.

I'm off to the new "dug out" at the old "Town House."—So long. . . .

Peace And The People

As the hour of victory approaches, Americans are thinking of what they want peace to mean to them as individuals, to the nation, and to the world at large. But, so far, no channel for mass expression of these ideas has been provided. Our statesmen have no measure of public sentiment to guide them as they prepare to sit down at the peace table with the gentlemen from the chancelleries and foreign offices for the final settlement which is to determine the fate of the world.

For that reason we welcome the announcement of a National Peace Treaty Contest, the first of its kind during World War II, through which legal residents of the United States and its possessions and members of our armed forces abroad are invited to write their own ideas of a peace treaty in competition for prizes totaling \$10,000 in War Bonds.

The contest, inspired by the best-selling book, "The Gentlemen Talk of Peace," by William B. Ziff, will open on March 17 and all entries must be postmarked before midnight, April 15, 1945. Contestants will be limited to a 1,000 word expression of their ideas of how the peace treaty should be drawn up, but in setting this limit it is pointed out that the purpose of the contest is to obtain ideas—not essays, on the subject of peace.

Entries will be judged by a committee of distinguished Americans, headed by Joseph W. Frazer, chairman of the board of directors of the Graham-Paige Motors Corporation. Other members of the committee in addition to Mr. Frazer are: Vice-President Harry S. Truman; Fannie Hurst, novelist; William Green, president, American Federation of Labor; Clinton S. Golden, executive vice-president, United Steel Workers of America, CIO; Senator Owen Brewster, Republican of Maine; Ray Rand, former army private wounded at Salerno; Mrs. Warren Cain, Los Angeles Catholic clubwoman and blue star mother; Dr. Rockwell D. Hunt, Dean of the Graduate School, University of Southern California; Rev. Ralph W. Sockman, minister of Christ Church, Methodist, New York City, and Mr. Ziff.

Through the media of press and radio, the general public has been kept better informed of the developments and objectives of this war than in the case of any other war in history. In this war, and the peace to follow, the "ordinary" people of the nation are the biggest stakeholders. They have made all the sacrifices of war and will continue to pay its toll in sorrow and money for many years to come.

We feel confident that many of the entries in this contest will contain ideas that will contribute toward making the world a better place to live in. We urge everyone to submit their ideas in plain American "horse sense" to the National Peace Treaty Contest Headquarters at 350 Fifth Avenue, New York 1, New York.



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Red Terrors Begin Baseball Practice

Dillon's Dallyings

Intercollegiate sports in which State athletic teams will participate this spring are baseball and track. Coach Beattie Feathers has been holding daily practices the past few weeks for the baseball team. State will meet Duke, N. C. Pre-Flight, and Carolina on the diamond four times each. Two years ago, State won two league games, both over Pre-Flight. Carolina won the league title that year. In 1944, the Terrors lost all twelve contests. Pre-Flight copped the title last year. This season's nine are somewhat better than the team which represented State last year. The opener is scheduled for Doak Field against Pre-Flight on Easter Monday.

Coach Tom Hines has been grooming his '45 track team for the past three weeks. Hines is having daily work-outs for those on the team in preparation for a four-game schedule. State will engage the University of Virginia in the first meet at Charlottesville on April 14. The following Saturday, the William and Mary cindermen will come to Raleigh. The locals will have a return meet with W. & M. at Williamsburg on April 28, and on the next Saturday, South Carolina will come to Raleigh for State's last meet.

The dorms made it three out of three against the fraternities in intramurals when S. Welch topped Sigma Pi for the fraternity title. N. Welch won the volleyball championship, and 3rd Bagwell captured the football title. This term, softball and track will hold the intramural spotlight. The PiKA's will be the defending softball champions. A dormitory team won the track title last year by defeating ALT, the fraternity winner.

Jack Horner, sports editor of the *Durham Herald*, is attempting to start a movement to get the Southern Conference officials to switch the site of the annual basketball tournament from Raleigh's Memorial Auditorium to the spacious Duke gym in Durham. . . . Doug Page, State baseball star last year, has been slightly wounded in Europe. . . . Morehead Jones, who was a wrestler on Herman Hickman's team in '40, '41, and '42, has been killed in action in Germany. . . . Al Thomas, line coach here last year, who resigned to take a war job in Tennessee, has decided to resume his football career after all—but not at State. Al joins Frank Murray's coaching staff at

the University of Virginia soon. State upset Virginia at Norfolk last year 13-0. The two teams will meet in the same city again in 1945.

Welch Team Wins In Campus Basketball

For the third time this year the dormitories copped the intramural sports championship. This time Welch won the campus title in basketball by defeating the interfraternity champs, the Sigma Pi's, 17-15.

The game was closely contested throughout the first half, with the score standing at 8-7 in favor of the Sigma Pi's at the end of the first period. During the second half the dormitory boys got hot and ran the score up to 12-8 in their favor. Continuing this fast pace, the Welch team held a 6 point advantage with only one and a half minutes to go. At this point the Pi's made a last minute rally which netted them 4 points, but was not enough to put them even with the hard fighting Welch boys. The score stood at 17-15 when the final whistle sounded.

High scorer of the game was Edgerton, of Welch, with 7 points. Tied for second high scoring honors were Gupton, for the Sigma Pi's, and Kennedy, for Welch, with 5 points each.

In the games to decide the two contenders for the championship, Welch won over North Gold and 1st Bagwell, who were also tied for first place. In the interfraternity league the Sigma Pi's beat the Lambda Chi's, 14-7.

PI TAU SIGMA

(Continued from Page 1) fraternity are urged to get in touch with one of the following men: President Grover C. Burchette, Vice President Earl D. Frazier, Secretary Melvin V. Lassiter, Jr., Recording Secretary Albert N. Perry, Treasurer Walter Loewensberg, Faculty Advisor Robert B. Rice.

Dates for smokers and meetings will be announced in the very near future.

In the billion dollar airport program recommended by the Civil Aeronautics Authority, the greatest increase in the number of airports is proposed for towns of less than 5,000.

Lyle M. Rich Signed As 1945 Line Coach

Lyle M. Rich, director of athletics and physical education in the Charleston, W. Va., high schools, has accepted a one-year contract as line coach at State College, it was announced recently by Dr. H. A. Fisher, chairman of the State College Athletic Council.

Rich, who did undergraduate work at Yankton College in Yankton, S. D., and earned his master's degree in physical education from the University of Michigan, will succeed Alfred W. Thomas, who resigned the State line coach position recently to return to his home near Knoxville, Tenn. Rich will begin his duties July 1.

Coach Rich, who is 39 years of age, began his coaching career in South Dakota high schools and later moved to Nevada. He coached at Kingsport, Tenn., from 1934-38 and was appointed director of athletics and physical education at Charleston, W. Va., in 1939.

Grid teams tutored by Rich have won 96 games, lost 10, and tied 6 in the past 11 years. A veteran track coach, Rich has coached track teams which have won five State championships, placed second four times in state events, and captured third and fourth places once each.

Among football players developed by Coach Rich are Bobbie Cifers, Tennessee back; Russ Thomas, Ohio State tackle; Bob Peters, Princeton back; Dick Huffman, Tennessee back; Charlie Schrader, West Virginia back; Bill Sanders, Tennessee tackle; and Denver Crawford, Tennessee tackle.

Dr. Fisher praised the record of Coach Rich and said that Rich was approved by the Athletic Council upon the recommendation of Head Coach Beattie Feathers.

One of the recent accomplishments of Coach Rich was his work in aiding the Tennessee coaching staff in training the Volunteer squad, which played in the Rose Bowl on January 1 of this year. During his student days at the University of Michigan, the new State coach worked on the football staff of Coach Harry Kipke.

As State College obtains its new coaching staff, Dr. Fisher explained that preparations are being made for "a versatile program to meet the physical needs of all of the students." He said that the college is arranging for the participation of all of its students in some type of athletics and that the coaches are being requested to discover the interests of the students and to organize teams and events of a more diversified nature.

State College, Dr. Fisher said, plans "to lay more stress on physical fitness, the better understanding of the value of competitive athletics, and the development of better all-around sportsmanship."

Dr. Fisher stated that the best place to get varsity material is from campus-wide teams. He emphasized the need for coaches, "who can coach more than one sport, and who have a zeal for all sports."

PROF. WINKLER SPEAKS

(Continued from Page 1)

Who's responsible for getting the necessary things done? Much help can be obtained from State and Federal Agencies, Insurance Companies, and Safety Councils, the picture concluded.

Dr. E. E. Randolph, head of the department, thanked Prof. Winkler for his presentation of the safety problem. He then showed the relation between Chemical and Safety Engineering.

At the same meeting, Vic Shelburne, presented to George Parker the A.I.C.H.E. Scholarship Award

Have Heavy Schedule In New Ration League

News Of Ed Berlinski, Former State Athlete

In a recent sports column in the *New York Daily Mirror* there appeared an article written by a man who has just returned from a German prison camp. In talking about the sports activities in the prison camp, he mentioned Eddie Berlinski, a former gridiron and basketball star at State. In a discussion giving the relative sports abilities of the men in the camp he said: "There was Eddie Berlinski, who used to run wild over in Bloomfield, and then went to North Carolina State. He was a real sports almanac. We used to sit around talking sports and I'll bet that no one in this world can stump Berlinski on a sports question from 1925 to 1942. He knew how many seconds every track man took for any distance. He knew the scores, when the knockouts came, everything. He was eventually voted the outstanding athlete in the prison camp, and also the best dressed. Sure, the best dressed. Those fellows used to sleep on their pants in some special way to keep the crease in and they pressed their shirts and shined their shoes."

Anyone having snapshots suitable for publication in the *Agromeck*, please drop them through the slot in the *Agromeck* office door in Owen Hall. These pictures must be in immediately.

Coach Beattie Feathers is rapidly getting the State baseball nine into good shape for a heavy spring schedule. Out of the approximately 40 boys who reported for practice on the first day, 26 are left who will expect to see plenty of action.

As the present line-up has it, Evans and Collins will be at the catcher's position, Kohler and Pickett at first base, Wood at second base, Perry and Massett at short stop, Richkus at third base, and Wilson, Rose, Gibson, and Collins in the outfield. Riffin is the most outstanding pitcher. Also on the pitching staff are Poitras, Wilson, and Gibson. The last two mentioned are alternating between pitching and the outfield.

The only returning lettermen are Jimmy Wilson of Scotland Neck, Bob Wood of Graham, and Hubert Rose of Kealy. Wilson was the leading hitter last season with a batting average of .387. He was also voted as being the most outstanding player on last year's team.

The Terrors have a sixteen-game schedule to play, with twelve of them being in the newly-formed Ration League, composed of State, Duke, Carolina Pre-Flight, and Carolina. The first game will be played with the Cherry Point Marines on March 31. The first home game in the Ration League will be played here with Carolina Pre-Flight on April 2.

Looking his prospects over with an appraising eye, Coach Feathers said that he expects the Red Terrors to make a "credible showing" this spring, but he cautioned that it would take a lot of practice to develop his club into a smooth-working organization.

Martin Hall To Deliver European Peace Lecture



MARTIN HALL

Monday, March 26, 1945 at 8:00 p.m., in Pullen Hall, Mr. Martin Hall, world traveler, internationally known journalist and educator, will deliver a lecture on "What Price Lasting Peace in Europe."

Mr. Hall, born and educated in Germany, was expatriated by Hitler for his fearless criticism of Nazi outrages. From 1933 to 1936 he was connected with the German Underground which he covered for the "Manchester Guardian," England. Later, he came to America and is now in the process of becoming a citizen of the United States.

His lecture tours have taken him into practically every state in the union and his lectures have always met with an enthusiastic reception. His appearance before the Raleigh Institute of International Relations last June made a profound impression, so much so that he is one of the few speakers appearing on our public lectures program with whom we have made a return engagement.

His theme is pertinent, his knowledge extensive, and his lecture stimulating. The public is cordially invited to hear him.

May Double U. S. Airports

At present, only 1,629 of the 3,047 counties in the United States have one or more airplane landing areas. This average of 53 per cent would be brought up to 88 per cent under proposals made by the Civil Aeronautics Administration to Congress. This would give the United States one or more airports in 5,269 communities against the 2,585 airports today.

Approximately 7,000 miles of coaxial cable between Boston and Los Angeles will be used to carry simultaneously 480 different telephone channels and television pictures after the war.

SPORT SHIRTS

STYLED FOR YOUNG MEN



112 WEST HARGETT STREET

Day Dawns For Jet Propulsion

By C. A. SCARLOTT, Editor,

The Westinghouse Engineer

It has taken a war to make us realize that rockets are something more than a Fourth-of-July toy. Heartening stories of Allied successes with the bazooka and thrilling accounts of the anti-aircraft rocket defenses of Moscow made us recognize rockets as major implements of warfare. Any lingering doubts we may have entertained about the engineering possibilities of the rocket specifically and of jet propulsion in general were permanently dispelled by the news of what robot bombs did to London.

The curtain of military secrecy around rockets and jet-propulsion devices only now and then reveals a glimpse of some of the accomplishments of these amazing devices. However, some hint of their magnitude even now is indicated by the U. S. Navy's use of \$100,000,000 worth of rockets per month by mid-summer of 1944. Correspondingly large quantities are undoubtedly being used by the other military services. The newspapers have carried stories, in addition to those about the German's V-1 and V-2, of rocket-propelled shells in several forms, of rocket-assisted take-offs for airplanes, of jet-propelled planes, jet-assisted gliders, of our own robot bombs, and other vehicles and weapons of war.

A number of new terms have been added to our language—rockets, buzz bombs, robot bombs, athodyd (pronounced ath-o-did) jet propulsion, gas turbines! They have appeared in the public prints so suddenly that what they mean and whether they have a common engineering basis are not too clear.

Their bases are related, very definitely. These devices are as solidly grounded in engineering as other heat engines—for such they are. A common principle provides the basis of operation of all propulsion methods—the rocket, the athodyd, the buzz bomb, the gas-turbine jet, the combination gas-turbine jet and propeller drive, and, for that matter, the conventional propeller-driven plane. That principle is the third law of motion, expressed by Newton, to the effect that action and reaction are equal in amount but opposite in direction. A more formal way of stating this underlying law is that the net force on a body is proportional to the time rate of change of momentum caused by the body. This means that the propulsive thrust is proportional to the product of the mass of material ejected from the vehicle in a given time and the amount its velocity has been increased with respect to the vehicle. Clearly—and this is important—a given thrust forward can be produced either by ejecting rearward at low velocity a large amount of material in a certain time as does the propeller, or a smaller amount of material in this interval but at higher velocity, as does the rocket.

This basic relationship also indicates that nothing is required for the jet to push against. In fact any material outside the jet orifice simply gets in the way of the ejected matter and somewhat reduces the forward thrust. Rockets, for example, produce the maximum thrust in a vacuum. So would any other reaction device were it not for its need of oxygen.

The variations in construction, operation, and fuels of reaction motors attempted by rocket enthusiasts and jet-propulsion experimenters in the past several hundred years are numerous. The present known successful ones reduce to two basic types of jet engines. These are:

A—The self-contained or true rocket motors, which carry both the oxygen and the fuel.

1. Dry fuel.
2. Liquid fuel.

B—The air-stream engines, which take their oxygen from the air.

1. The intermittent-firing duct engine.
2. The continuous-firing duct engine.
3. The gas-turbine engine.
4. The combination gas-turbine propeller drive.
5. The reciprocating-engine propeller drive.

The fundamental difference between the two basic types is the source of the oxygen. Rockets are independent of the atmosphere; the air-stream engines are not. All, without exception, work on the reaction principle. All but the fourth and fifth air-stream engines are jet-propulsion engines. While gas-turbine and reciprocating-engine propeller drives are not jet-propulsion engines, their propellers serve the same purpose as a jet, i.e., they accelerate rearward a mass of air to generate a thrust. Although some propulsive effect is obtained from the exhaust of a reciprocating engine, it cannot properly be included in a list of jet-propulsion engines.

From a theoretical point of view, it does not matter what the ejected mass is: solid, liquid, or gas. Only the rate of mass ejection and the increase of its velocity count. The material could be sand, or—as in the case of the squid—water. In the several hundred years of rocket experimentation many materials have been tried. However, the only practical substances now known are gases, the products of combustion. Their mass is comprised of the weight of the oxygen and the fuel, and any inert gases present. By the nature of their production they can be ejected at high velocity. In short, all propulsion devices can be considered to consist of a heat engine that converts the fuel energy into mechanical energy, together with a device for converting this energy into a rearward jet. The rocket converts its energy into a rearward jet by expansion in a nozzle. The reciprocating engine uses a propeller to effect a rearward velocity.

Judgment of the engineering worth of the new reaction machines demands a large point of view. It is not too much to call these devices revolutionary. Placed in engineers' hands is a fundamentally new type of engine, different in principle, different in performance from those to which he has been accustomed. Any thought that this is a competitor in our present fields of transportation is both narrow and erroneous. More properly it should be thought of as extending the limits of flight of all sorts of vehicles.

By that we do not infer that trips to the moon are imminent—although it is equally foolish to rule this out as an eventuality. We mean things not so distant. Of these at best we can suggest only a few. Obvious, of course, are the military applications both for projectiles and for high-speed aircraft. Gas-turbine jet units even now appear attractive for high-speed commercial aircraft. Then there are others, more remote, such as the meteorological rocket, robot rocket mail and express. The implement is at hand for again pushing back the limits of aerial transportation.

G. S. Watkins of Charlotte has recently been elected president of the State College Chapter of the American Institute of Electrical Engineers.

Other new officers are Pvt. J. F. Beau of White Plains, N. Y., vice president; C. D. Dixon of Belmont, secretary-treasurer; and J. W. Chadwick of Rocky Mount, representative to the Engineers' Council.

Postwar Market Seen For 60,000,000 Radios

A postwar market for 60,000,000 home radio receivers—enough to keep the industry at peak production for six years—is anticipated by the Westinghouse Electric & Manufacturing Co., its Stockholders' Quarterly, issued recently, declares.

Reporting on an extensive survey which influenced the Company in its recent decision to re-enter the home radio field with a complete line of home radio and television receivers as soon as materials and manpower are available, the Quarterly lists these five factors expected to affect strongly the postwar market:

1. Frequency Modulation (FM) radio will hasten total replacements by outmoding practically all sets now in use.
2. The demand for radio-phonographs will increase the size of the market by increasing the average sale.
3. Returning service men, establishing new homes, will represent a huge new market.
4. The surface has only been scratched in the market for extra sets to provide listening convenience throughout the home.
5. A steady growth in home television is anticipated.

FM Possibilities Great

Most powerful of these forces in creating a huge postwar market will be the general acceptance of FM, a new kind of radio transmission which minimizes static and reproduces programs with life-like quality.

"Fifty FM stations are now on the air and several hundred will be built soon after the war," the Quarterly points out. "But there are nearly 60,000,000 radio sets in American homes that cannot receive this new and finer kind of radio transmission."

"Westinghouse will be ready to obtain its full share of this market," the Quarterly continues. "All but our lowest priced sets will be built to receive FM as well as regular programs and international shortwave broadcasts."

The Quarterly also points to the curious fact that as home radio grew in popularity, the demand for recorded music dried up to almost nothing—and then blossomed forth again in recent years with amazing new vigor. Today only five per cent of all families have radio-phonograph combinations, but the survey indicates that 40 per cent of the families want such sets after the war.

Television Outlook Optimistic
"About the future of television, Westinghouse is both optimistic and realistic," the Quarterly says. "There are no great technical obstacles in television's path."



PHIL BRITO

SHARPS & FLATS

By HOWARD KADEN

Well, fans, here I am once again, and with a new term beginning, I have decided to institute a new feature in *Sharps and Flats*. Every week, I'll try to give a brief sketch of a famous personality in the music business. Let's get off this week with Phil Brito.

Phil Brito, handsome baritone, is making great strides towards the crown in the "crron-groan" sweepstakes, with his unique velvet-tone singing.

Phil was born in Boomer, West Virginia, September 15, 1915, the oldest of a family of nine. His father was a coal miner, who played the trombone in the town band, and whose supreme passion was music. His mother had an excellent voice, although she never sang professionally.

It was in his high school days that Phil learned the violin, and began singing in school shows and benefits. At one of these benefits, in 1931, a friend of the family suggested he try to get on station WAAM in New Jersey. (The family had moved to Newark when Phil was eight, and they are still there.) Phil auditioned with them, and was promptly given a fifteen minute spot once a week.

He continued to sing over WAAM, and other small stations until 1932, when he got his first paying job with WMCA in New York City, where he had a weekly broadcast.

His next stop was WOR, singing three nights a week. Following this, he had his own band for a half year, and then he joined Ray Huston at the Hotel Lexington in New York City. Following this engagement, he worked with Lloyd Huntley as featured vocalist and assistant leader. This association lasted four years. Phil made his first records with this orchestra, and while in Canada, had two weekly commercial programs on the Canadian network.

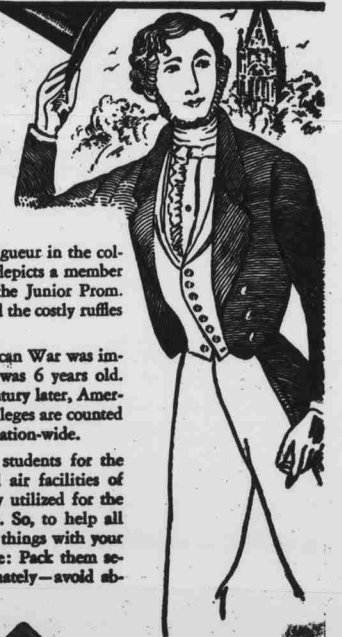
In 1938, he returned to Newark, singing three times weekly over NBC, and working and recording with Jan Savitt.

Post War Air Travel to Europe

An average of 280,924 passengers will travel annually via air to Europe according to figures compiled by the Civil Aeronautics Board.

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A MEMBER of THE CLASS OF 1845



Spickness and spanness were de rigueur in the colleges of the 1840s. This portrait depicts a member of the Class of 1845 attired for the Junior Prom. Observe the height of his stock and the costly ruffles on his shirt.

In that same year, 1845, the Mexican War was imminent. Railway Express service was 6 years old. The colleges were few. Now, a century later, America is fighting a global war, the colleges are counted by thousands, and our service is nation-wide.

Today, the colleges are training students for the armed services; and the rail and air facilities of Railway Express are being largely utilized for the speeding of war-goods shipments. So, to help all concerned, please do three simple things with your 1945 home packages and baggage: Pack them securely—address clearly and adequately—avoid abbreviating state names.

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NATION-WIDE

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Ensign Penland Speaks On Synthetic Rubber

At the regular Tuesday night meeting of the A.I.Ch.E., Ensign B. W. Penland spoke on synthetic rubber manufacture at the Goodyear Rubber plant at Akron, Ohio. Penland, who graduated last year with a degree in Chemical Engineering, worked for Goodyear during the summer months, before he joined the Navy. At present, he is studying diesel engineering with the Navy here.

Penland began his talk by stressing the importance of control equipment in the manufacturing process. In the manufacture of synthetic rubber, the controlling of temperatures, pressures, and timing are of the utmost importance. Goodyear has a nice set up for the orientation of new employees, he continued. They have a Factory Office training squad whose duties it is to show the employees the different jobs around the plant, and finally to assist in placing you in some line of work. An employee assigned

to a particular job is expected to learn this job thoroughly in preparation for advancement.

Penland then told about his experiences with the pilot plant which he worked on, and finally presented a complete picture of the manufacture of synthetic rubber latex by the use of styrene and butadiene. It is amazing to think of the progress made in synthetic rubber after considering that about 50 years have been spent in making natural rubber as good as it is, while comparatively, synthetic rubber is as good for certain uses and much better on others. Penland mentioned the fact that test tube and pilot plant operations, while they are of great value in developing manufacturing processes, sometimes produce very different results from actual factory production. He concluded by saying that apparently Goodyear thinks that there is a future in synthetic rubber, judging by the expansion they

plan to make in their laboratory facilities for more investigation on synthetics.

Edgar Orr then presented an interesting skit about painting the water tank at Meredith, which proved to be fictitious. Some questions were asked about the operations which Ed claimed "was carried on with great secrecy."

Business at the meeting included presentation of the nominations by the executive committee for next year. These were: For president: Bill Thomas; Vice President: G. C. Fuller; Secretary: Jimmy Deas; Treasurer: Stuart Wood; Representative to Engineer's Council: Billy Matthews; Alternate to Engineer's Council: Marshall Pinix; Reporters: John C. Huffman, H. J. Lewis, George Parker, and Edgar A. Orr. Elections will be next week.

Meredith Water Tank Mysteriously Painted

The students of Meredith College found an interesting surprise awaiting them when they arose Friday morning. During the night it seems as if some raiding party attacked the water tank and painted "ANGEL FARM" in bold yellow letters on it. Most of the students got a pleasant laugh out of it, according to reports, but officials had no comment to make.

There has been much speculation as to who the guilty parties are, but one prominent speculation has it that it was done by Wake Forest students since yellow paint was used on the black tank, producing that school's colors. Had State men been involved white paint on a red background might have been employed. Then too, as one boy put it, "No engineer would put up that poor lettering."

As yet, the sign still stands and things have quieted down, but many people are still waiting for the final outcome.

Such tricks aren't new around here according to oldsters who remember back when... The Meredith water tank has been a popular painting place for years, while city water tanks have also received their share of student painting projects. Reports have it, that this is the first project to appear in



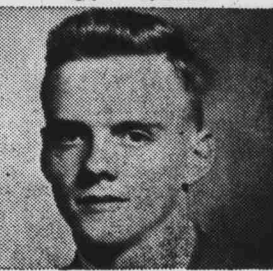
C. D. DIXON



J. F. BEAU



J. W. CHADWICK



G. S. WATKINS

Pictured above are the newly-elected officers of the State College Chapter of the American Institute of Electrical Engineers, an organization to promote the advancement of electrical engineering and to foster the maintenance of high professional standards among its members. The new officers are G. S. Watkins of Charlotte, president; Pvt. J. F. Beau of White Plains, N. Y., vice president; C. D. Dixon of Belmont, secretary-treasurer; and J. W. Chadwick of Rocky Mount, representative to the Engineers' Council. Private Beau is a member of the Army's Specialized Training Unit at the college. Professor L. M. Keever of the Department of Electrical Engineering is the faculty adviser.

Raleigh since the kidnapping of "Rameses," Carolina's famous mascot two years ago. Sometime back, boys who had participated in putting the bear in Pullen Park had bears besides their pictures. Someone asked the *Agrameck* whether or not any students would have water tanks or angels by their pictures this year, but this question remains unanswered.

Dairying Foundation Receives Royalty

Ralph H. Scott, owner of the Melville Dairy in Burlington, has made an agreement with the producers who sell their products to his dairy to match their donation of one per cent per 100 pounds of milk sold with a like amount and to donate the total contributions to the Dairying Foundation, an organization to promote dairy training and research at State College.

Announcement of Scott's proposal was made here by Roy L. Williamson, property officer of State College, who said that the plan was permanent.

Buddy Means Visits College On Furlough

First Lt. Henry D. (Buddy) Means, a 1940 honor graduate of State College and a veteran of 70 bombing missions in the South Pacific, has returned to the States, and he visited friends at State College last week.

A member of the hard-hitting "Bulldog" squadron of the First Marine Air Wing based at Bougainville, Lt. Means participated in strafing and bombing strikes against the enemy in the Northern Solomons and the Bismarck Archipelago areas.

During his student days at State College, Lt. Means was cadet lieutenant colonel of the ROTC regiment, vice president of the Student Body, and president of Golden Chain. He received a monogram in boxing and a trophy as the best-all-around intramural athlete.

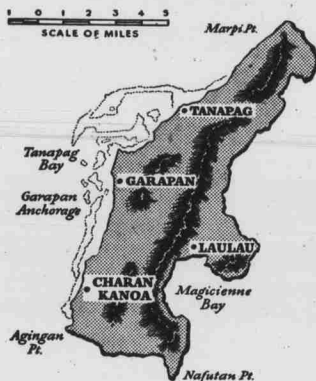
P&W Fellows Finish Special Curriculum

Seven young women enrolled in the Pratt and Whitney fellowship program at State College have completed requirements prescribed in a special curriculum, it was announced by Prof. Robert B. Rice, executive officer of the State College Department of Mechanical Engineering and coordinator of the Pratt and Whitney fellowship program at the college.

The list of those completing the courses: Mary M. Carroll, Wake Forest; June L. Freeman, Raleigh; Josephine Jerome, Raleigh; Kathleen Lard, St. Joseph, Mo.; Kay F. Marshall, Des Moines, Iowa; Mary E. Northcott, Raleigh; and Jean E. White, Raleigh.

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When you realize that Saipan is only *one small island*—and that many more bases must be taken and similarly developed—you get some idea of the job still ahead.

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Jim Bannon and Nina Foch



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"Can't you ask for a new dress without dramatics?"

Qualifying Tests To Be Held By ASTRP

An Army Qualifying Test designed to determine the qualifications of students for the Army's Specialized Training Reserve Program will be held at State College April 12, it was announced yesterday by Col. Douglas N. McMillin, commanding officer of the State College Department of Military Science and Tactics.

Successful applicants will be sent to colleges and universities entrusted with the Army's training program, such as State College, and will study courses prescribed in a special curriculum, including English, geography, mathematics, history, and physics. The academic courses will be supplemented with programs of physical and military training to enhance the student's fitness for military service.

Young men whose 17th birthdays fall between October 1, 1944 and August 31, 1945, are eligible to take the test providing they are high school graduates and meet the citizenship requirements, Colonel McMillin said.

The Army will pay the student's tuition and textbook fees and will provide complete uniforms, living quarters, and meals.

Colonel McMillin explained that students accepted by the ASTRP will be called to active duty after they reach their 18th birthday and will be sent to reception centers to undergo the same processing as other men in the Army.

The ASTRP program provides

an educational and military background that will enable a student to handle Army duties in a more effective way, Colonel McMillin said.

Applications to take the test should be mailed to the State College Department of Military Science and Tactics.

Prof. Shunk Develops New Flagella Stain

Shunk's Bacterial Flagella Stain—developed by Dr. I. V. Shunk, professor of botany at State College—is the only stain of its kind recommended in the latest edition of Laboratory Methods of the United States Army, published late in 1944.

Flagella, delicate whip-like organs of locomotion on bacteria, are too minute and slender for visibility under an ordinary microscope in the unstained living condition, but proper staining methods, originated by Dr. Shunk, made the flagella thick enough to be visible—a valuable aid in identifying and classifying bacteria.

In some bacteria the structures of locomotion are attached only at one end as in the bacteria causing nodules on soybean roots, explains Dr. Shunk, while in other forms, such as the typhoid germ, the flagella are scattered all over the body of the cell. Other bacterial types have no flagella at all. Dr. Shunk's staining methods makes possible the faster and more efficient identification of these and other types of bacterial life and is a contribution to the advancement of bacteriology.

Pratt & Whitney Corp. Selects New Fellows

Interviews to determine the qualifications of young women for fellowships provided by the Pratt and Whitney Aircraft Corporation will be conducted by representatives of State College in six towns and cities in North and South Carolina during the next few days, it was announced today by Prof. Robert B. Rice, executive officer of the State College Department of Mechanical Engineering.

Successful applicants for the fellowships will enter State College in June to study courses prescribed in a special curriculum and will remain at the college for 12 months, Professor Rice said today. Following the period of training at State College, they agree to give Pratt and Whitney an option on their services for one year.

Professor Rice, who also is co-ordinator of the Pratt and Whitney fellowship program at the college, said the aircraft firm is interested in obtaining technically-trained young women for positions as engineering aides in its Hartford, Conn., plants. The fellowships are valued at approximately \$1,600 each.

The fellowships cover the tuition, fees, books, instruments, board,

giving a monthly cash stipend, lodging, and laundry as well as Young women with B.A. degrees or who will graduate in June are eligible to submit applications or arrange an interview at one of the towns or cities visited by representatives of State College.

Interviews will be conducted at Flora McDonald College in Red Springs on Friday, March 23; Queens College, Charlotte, March 26; Winthrop College, Rock Hill, S. C., March 27; Woman's College, Greensboro, March 28; Guilford College, March 29; and Elon College, March 30.

Applicants were interviewed at State College March 19, 20, and 21.

Plans Being Made For Lint Dodgers' Ball

Tompkin's Textile Society is making plans for the annual Lint Dodger's Ball to be given sometime during the latter part of the term. An out-of-town band is slated to play for the occasion which will be held in the Frank Thompson gymnasium. The dance is to be strictly informal and students with invitations are requested to wear old slouchy clothes in which they can be "at ease." All students interested in attending should get in touch with a Textile student.

State Alumni Clubs Now In 80 Counties

State College now has 25,000 former students, and more than 5,000 of that number are in the armed services, Alumni Secretary H. W. (Pop) Taylor told the Dare County State College Club at a dinner meeting here tonight.

Taylor said that 70 State College alumni clubs, covering 80 counties, have been organized in North Carolina.

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Wednesday
"NOTHING SACRED"
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