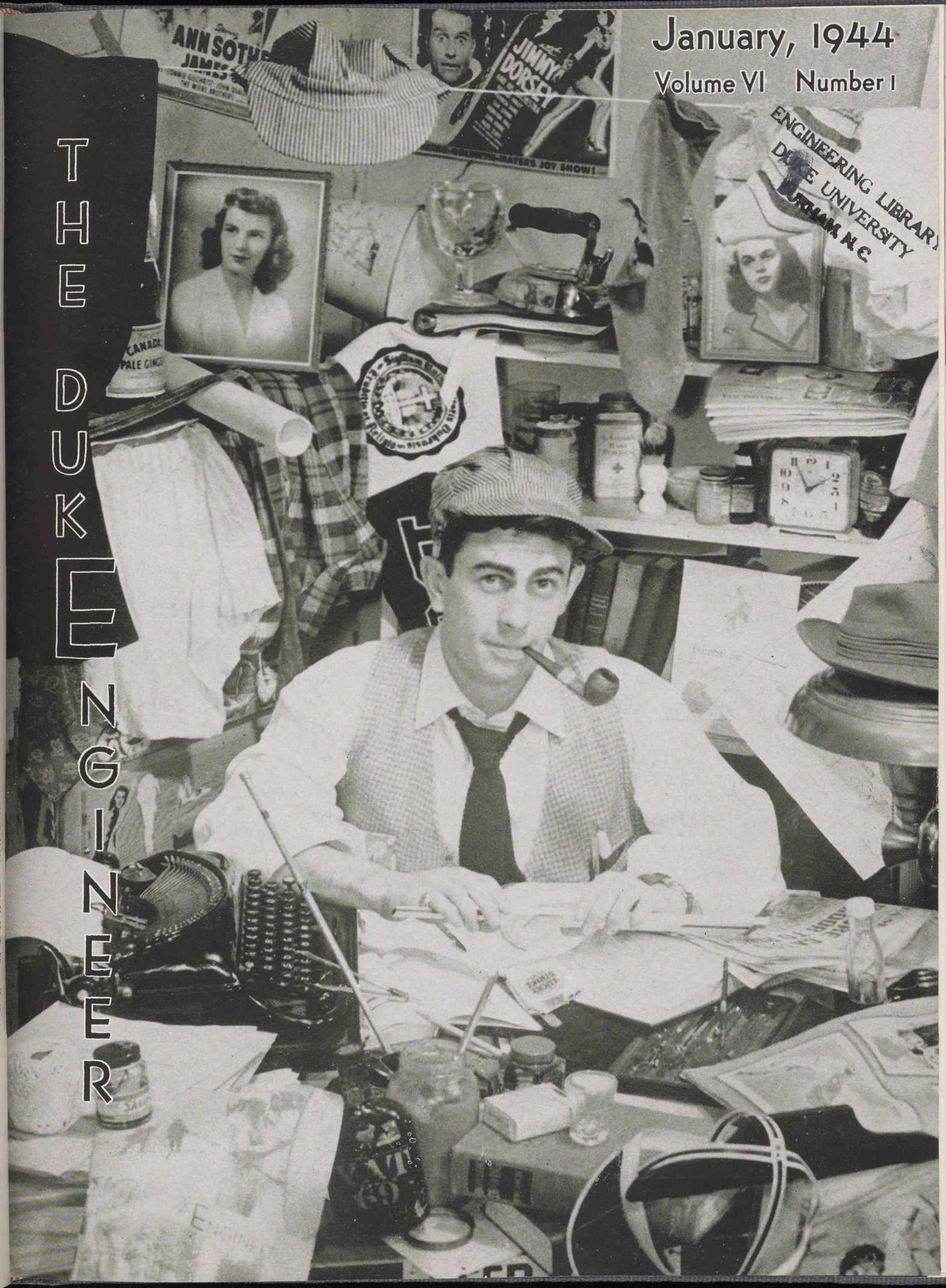
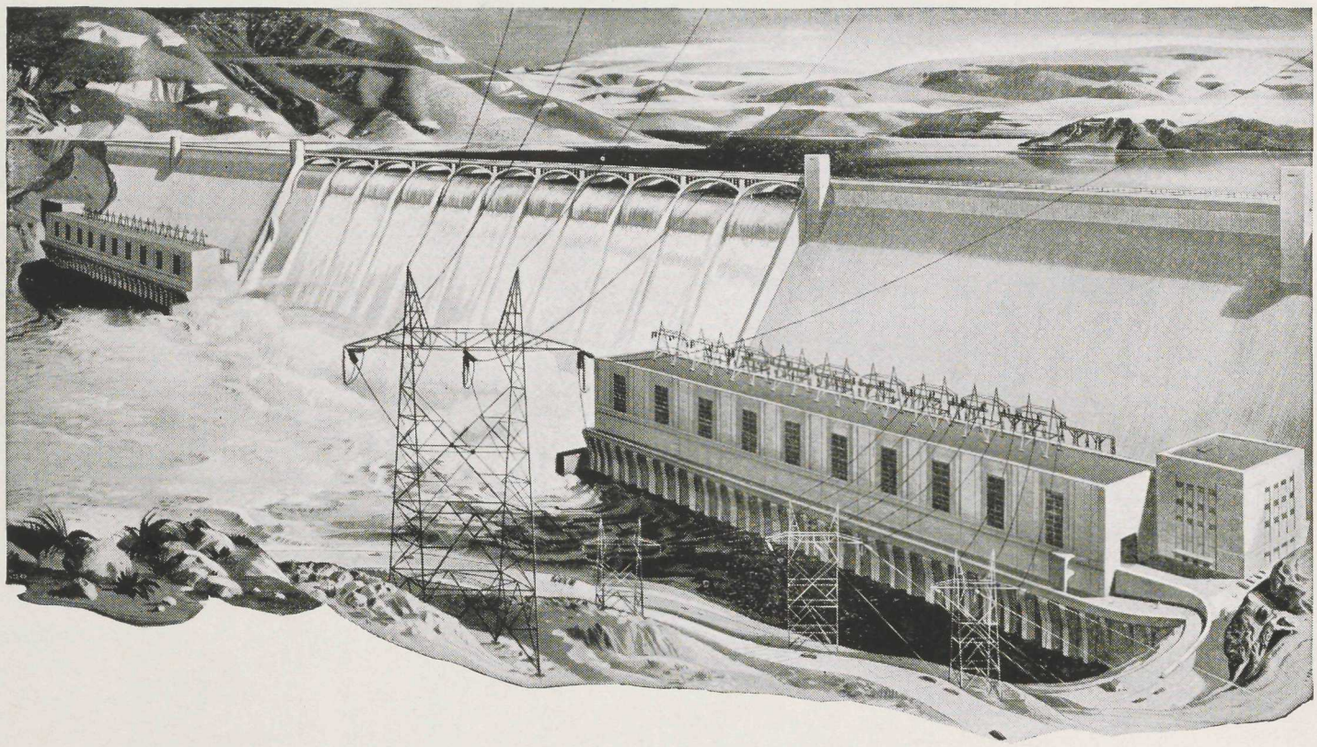


January, 1944
Volume VI Number 1

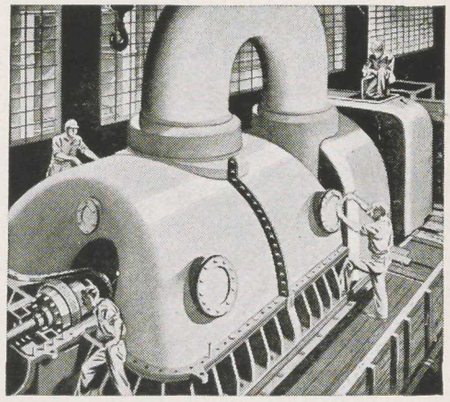


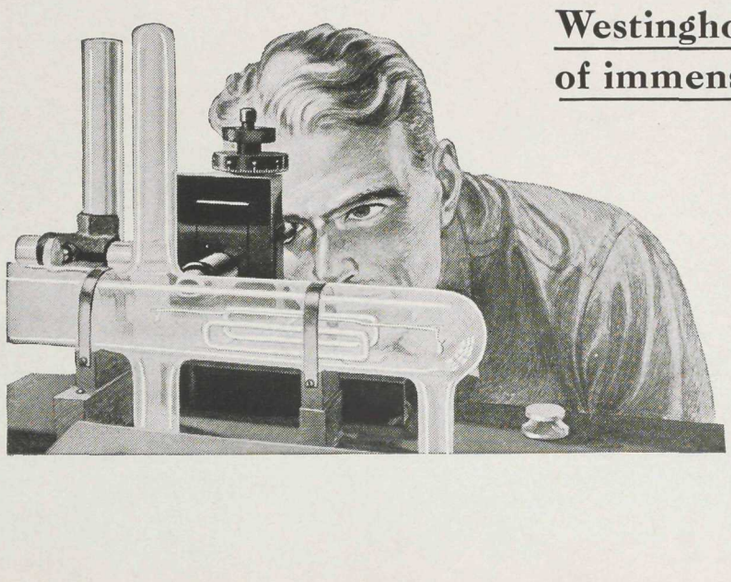
Westinghouse generators make power for a nation at war...

From the world's largest water-wheel generators at Grand Coulee Dam—from Westinghouse steam-driven generators in power plants throughout the nation—flow billions of kilowatts of electric power to turn the wheels of America's war industry.

Westinghouse combines the power of a thousand human skills...

A workman at a lathe, a girl on an assembly line, an engineer on the test floor—theirs, and the countless other skills of 103,000 Westinghouse employes, are welded into a single great production force. Their vast experience and knowledge help to produce the vitally needed power-generating equipment to drive America's mighty war machine.





Westinghouse contributes the power of immense new knowledge...

When the incredible weapons born of wartime research are reforged for peacetime service, the daily miracles that electricity will perform are certain to create new and finer standards of living . . . while the cost of electricity continues to decrease as our nation's power-generating capacity continues to increase. Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa. Plants in 25 cities—offices everywhere.

The DUKENGINEER

Magazine of the College of Engineering
DUKE UNIVERSITY

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In This Issue

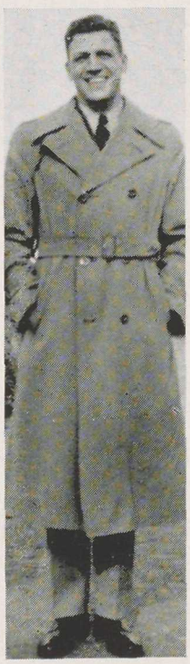
A Message from Captain Bob

Captain Robert E. Perinovich, U. S. Army Air Corps, former president of the E. S. G. A. and one of the founders of the DUKENGINEER, *presents this timely message to the student body.*

Day after day the headlines tell us of stronger and stronger attacks being made against our enemies. With tanks and bombers, artillery and fighter planes, destroyers and torpedo boats, we are constantly encircling and pressing back the Japanese and Germans. We are doing this methodically, strongly, and certainly; our goal will eventually be reached.

Praise is deservingly high for those men who are daily distinguishing themselves in the many combat theatres throughout the world. You've heard the stories: seven Stukas shot down in one mission; "Tail-end Charlie" with nine Messerschmidts to his credit; long, cold patrols over Kiska; invasion of Arawa; sinking of the Scharnhorst. These and other tales will long live as symbols of the brave men who fought there. Tribute must be paid their courage and ability.

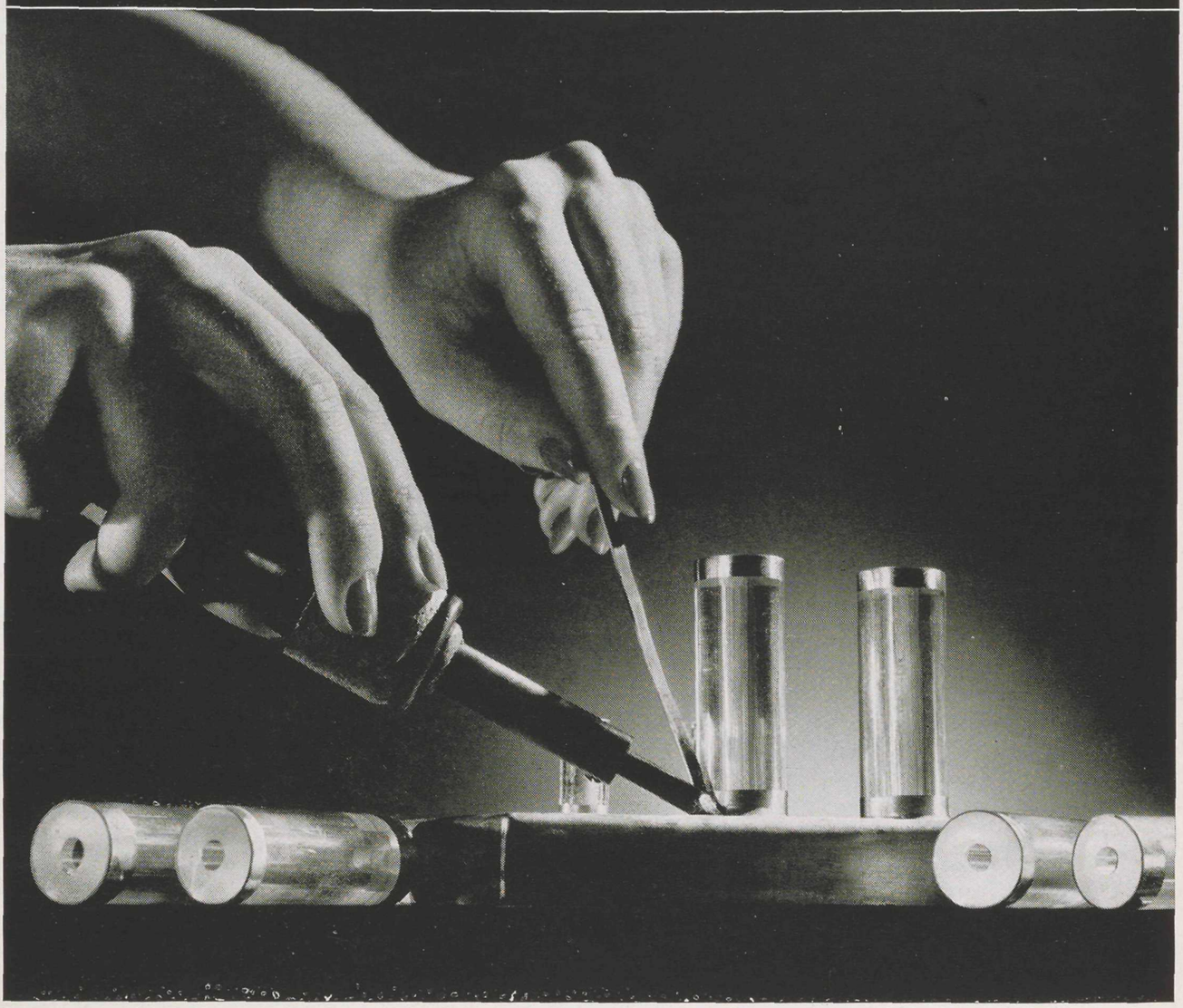
But—tribute must also be paid those men whose ingenuity and knowledge are making possible our victories by giving our soldiers and sailors the advantages of having the best equipment on the field. These men rarely receive public acclaim; no "Hero" labels or Congressional Medals of Honor are awarded them. Yet their workshops have been the birthplaces of every victory in this Second World War. These men are the Engineers—the Engineers who design faster planes, heavier guns, larger tanks, landing barges, walkie-talkies, jeeps, bazooka guns, portable runways, heating and cooling units, and—yes, even sanitary latrines. Crowding years of experimentation into months of thought, design, and conjecture, today's scientists and engineers are giving our fighters what they need. They are making our pilots, sailors, artillery men and tank men a match for any adversary.



You've read of the tank battles of Egypt and of the defeat of the near-legendary Rommel; you've read of Montgomery and Eisenhower and of their hard fighting troops; but what of the credit due the engineers who developed the 105 mm. tank gun which out-ranged the enemy, making his tanks useless; and what of the man in his office here in the States who devised a filter which kept the fine desert sand from the engines of our P-38 "Lightnings"? You know of Kiska and Attu and of the men who spent indescribably cold months relentlessly pounding the Japs—but how much of the

(Continued on page 3)

Imagine soldering metal to Glass!



HERE'S one for the book! The young lady is soldering metal to glass to make an important piece of electrical war equipment, and she doesn't have to be fussy about it either. She just solders!

The reason this can be done today is that some time ago Corning developed a method of firmly attaching a thin film of metal to glass, as a base for the solder. *It was just one of many glass-metal* problems that were once called "impossible."

Being ready with ideas has been the glass industry's greatest contribution to our war effort. That, and the ability to mass produce essential glass without delay.

Take Corning for instance. Here research found ways to mass produce essential optical ware. Insulators, aerial and naval navigation lenses, bulbs for electronic tubes, these and countless other war needed items are being turned out in vast quantities.

On the civilian front, Corning right now is supplying glass piping, and valves, nuts and bolts that resist chemical attack. Glass springs that apparently never wear out. Glass acid pumps that replace scarce metal alloys and give longer service in the bargain!

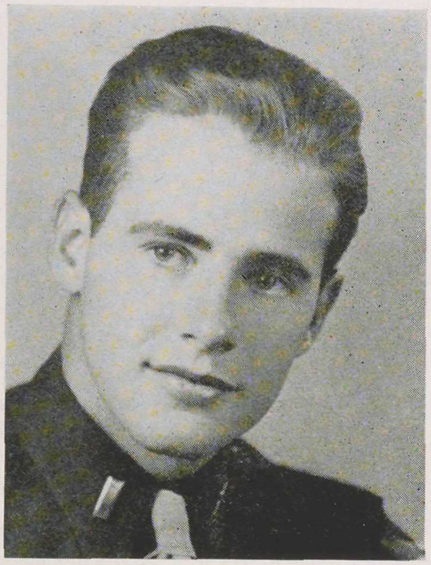
Glass isn't taking a back seat now, or after victory. Too many people are finding out something about its unusual qualities to ever let this happen.

They are discovering that glass is *versatile. It has astounding strength.* It can be shaped with great accuracy. It resists corrosion and abrasive wear. And they're finding out, too, that Corning knows glass, not only as a producer but as a developer of glass ideas.

In engineering, too, glass is a material with a brilliant future . . . In the years to come, keep your eye on glass! Corning Glass Works, Corning, N. Y.

CORNING
means
Research in Glass

GOLDEN STARS



Second Lieutenant Charles J. DeMaria left Duke while a freshman in the College of Engineering to enter the service of his country. After enlisting with the Engineers in January, 1942, he was transferred to the Air Corps in September, 1942.

Charley lost his life on November 2, when a four-engined Army bomber from the Pueblo, Colorado, air base crashed and burned early in the day, killing all the officers and enlisted men aboard. The big plane, a B-24 Liberator, was on a routine training flight when the crash occurred.

According to the statements of some residents of the vicinity who saw the accident the plane apparently pancaked and then exploded in a blinding sheet of flame. The wings of the craft were intact, as was the tail assembly, but the fuselage was a mass of tangled wreckage.

Charles' home was at Westport, Connecticut, where an impressive military funeral was held.

Lieutenant Benjamin Winston Rogers, formerly a student in our Engineering College, was killed in action over Greece on Nov. 19, 1943, only a short time after telling his parents that he had saved enough money to return to Duke after the war in order to finish his education.

A native of Durham, and the brother-in-law of Mr. Williams, of our Civil Engineering Department, he entered the Air Corps on January 3, 1942. He received his early training in aerial navigation at Honde Field, Texas. He was later sent to Carlsbad, New Mexico, for bombardier instruction, and received additional training with the 474th bombardment squadron, Barksdale, La.

Ben acted as a navigator in many raids over Europe and was the squadron navigator that made the raid over Greece. [While the message from the War Department concerning his death gave no details, a more detailed report is expected soon.]

A Message from Captain Bob

(Continued from page 1)

credit for victory should go to the Engineers who devised cold weather operating machinery, metal landing strips for the planes, and Radar to lead our men home through the fog and night?

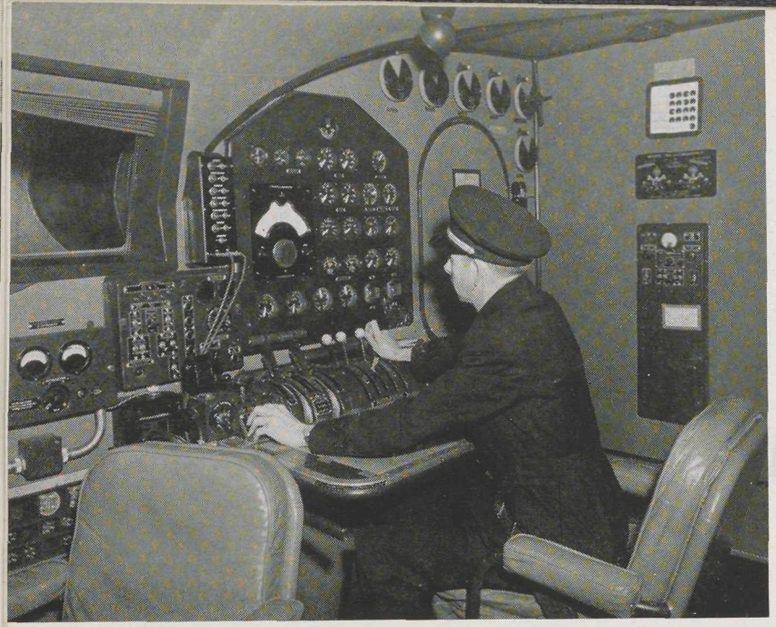
Every victory abroad begins with a victory in the experimental laboratories at home, and that is the job that you men—as our future Engineers—are training for. The "scientific front" will be your battle ground. The work you are doing now may not appear to have any bearing on the winning of wars. "Differential Equations," "Structures," and "Power Plants" may not seem the correct bases for the building of planes,

(Continued on page 17)

"FLYING

In contrast to last month's adventurous narratives by the pilots, a former student describes the less spectacular aspects of air travel.

All photos courtesy Pan American Airways



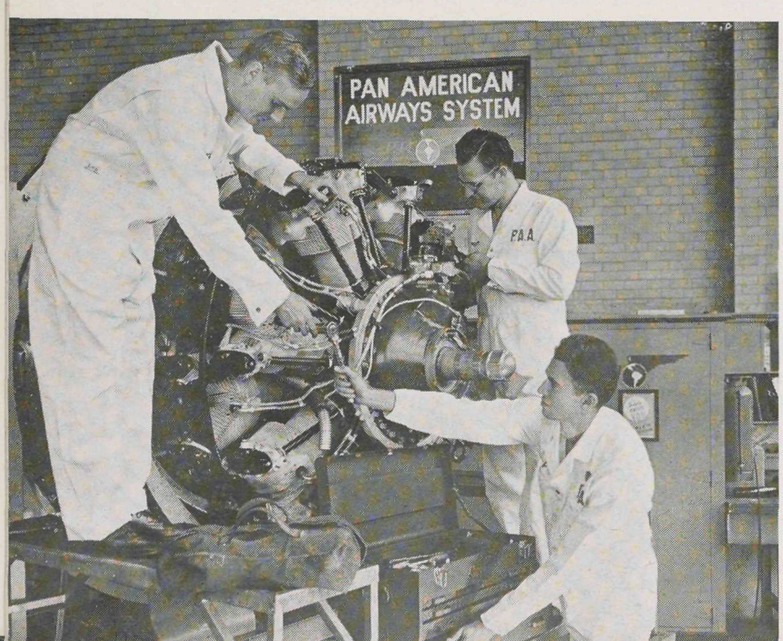
The flight engineer at his control panel aboard a Clipper.

You know that when something goes wrong with an airplane in flight you don't pull over and park on a cloud to fix it. This is especially true with Pan American Airways because there are no welcome emergency landing bases in the great oceans over which the Clippers fly.

The engineers behind the remarkable safety record of Pan American Airways have had a big job and have a still bigger one now that the giant flying boats are in wartime service. Both the flight engineers and the ground engineers have contributed much to the safe and efficient operation of the 42-ton transatlantic Clippers. The ground engineer helps prepare the ship for flight and the flight engineer helps make sure that it gets to its destination.

The flight engineers, there are two aboard every aircraft, have been called into action to repair mechanical difficulties on less than two percent of the Clippers' approximately 1700 crossings by the Atlantic Division since 1939. They are credited with preventing many accidents through their hourly checks and their clever repairs in flight.

Training of apprentice engineers includes a thorough knowledge of the Clipper's engines.



For example there is the flight engineer who crawled out to No. 2 engine to replace a magneto in flight. That is a major operation even in the hanger.

Then there was the transatlantic hop when, with the Clipper hours out over the ocean, the engineer noticed the oil pressure was falling on No. 4 engine. He stopped the engine and feathered the propeller, letting the other three 14-cylinder power plants carry the Clipper smoothly onward. He then crawled through the wing to the nacelle and repaired the oil leak. Twenty minutes later the power was on again and the ship sailed through the night while its passengers slept undisturbed.

On the ground too, the flight engineer's resourcefulness has been put to good use. At a mid-Atlantic port, rough water loosened the seawing, that's the hydrostabilizer which also carries a few thousand gallons of gas. He removed the tapered axle from an old Ford and with a cotter pin re-secured the seawing to the aircraft.

Once a Clipper passenger was having trouble with his leg. At 8,000 feet above the Atlantic he was feeling mighty disgusted. But all was not lost, for an obliging steward told the flight engineer who came to the rescue of the passenger with the aluminum leg. A couple of quick turns with a screwdriver and pliers repaired the leg, and the all-round value of the Pan American flight engineer had been proven again.

At this point, having been with the largest airways in the world for less than three months, I am unable to relate any of the personal experiences that Captains Sherron and Mitchell so interestingly wrote of in the last DukEngineer.. But I have been around long enough to hear some of the fascinating tales brought back from some of our African, European, and South American stations, so I can say that I certainly hope I will be able to go on foreign duty at one of these stations in the near future.

Before we can go on foreign duty, we have to serve a year as apprentice engineers learning the complete maintenance of the Clippers and their operation. At a foreign base the apprentice engineer is given a chance to prove himself and if he can pass all the requirements of a first-class engine and aircraft mechanic after another year, he will be assigned to a plane as an assistant flight engineer. Then the fun really starts. He will make regular trips to many world ports until he builds up a total of 1800 hours in the air; then he should be qualified to become a first-class flight engineer.

The apprentice engineer also has his choice of becoming a ground engineer. The training for ground en-

SLIDERULES"

By Martin H. Johnson, B.S. in M.E. '43
Apprentice Engineer, Pan American Airways System

gineering is similar to that for flight engineering, but does not emphasize the artisan type of training so necessary for the flight engineer. Also the length of foreign training of the ground engineer has been cut down somewhat due to wartime pressure.

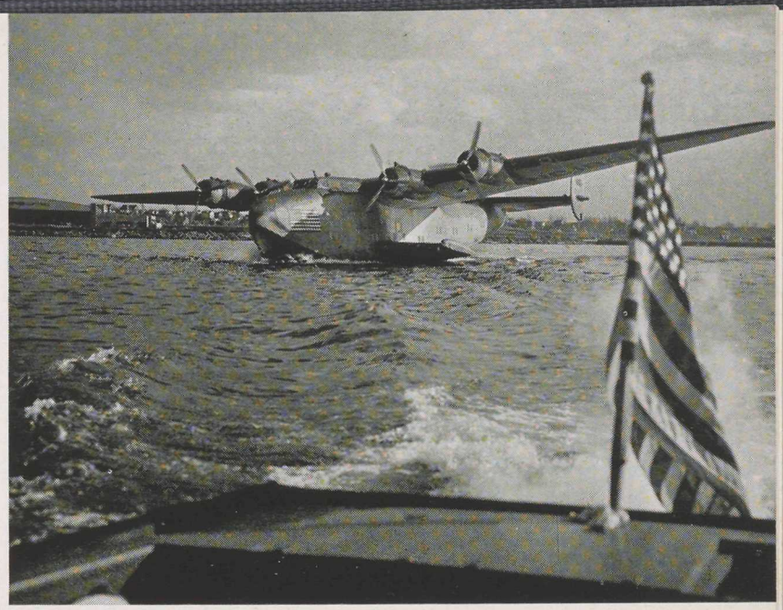
The work of the ground engineer is not as exciting as the work of the flight engineer being more comparable with manufacturing and service and he does not get around quite much, but he is equally important in keeping the Clippers flying. Behind the tremendous number of mechanics, welders, riveters, and many other craftsmen are the engineers who formulate procedures, specifications, designs and prepare the manuals which the flight engineer executes during his work. They are the ones who plan the most efficient methods of beaching, loading, launching, and preparing the ships for their next voyage. The ground engineer is called upon to devise many ingenious pieces of apparatus.

For example, there is the time when the Pacific Clipper was making its first flight from Guam to Midway. It was a dark and windy night when the giant flying boat was supposed to be approaching Midway, just a pin point of land in the vast Pacific. Hours passed by and the entire crew was skeptical of the outcome. If they missed Midway it would mean 1300 more miles of open water before they would reach land. With their fuel low and their hopes just as low, they continued on a straight course.

At last they spotted a light far in the distance directly on their course. They knew the base was new and equipment meager and so wondered about the beacon that guided them home. When they landed they were surprised to find that the guiding beacon was an old dish pan, painted white inside to make a reflector for a one-hundred watt bulb.

There are a great many things that I can't tell about; Military Secrets, you know. But we do learn a great deal and the work is very interesting. One day I was told that we were going to work on a boiler. Well, I thought that my old course in mechanical engineering would really come in handy as we certainly did a lot of work on that old boiler in the M. E. laboratory. The foreman showed me the boiler and I couldn't believe my eyes. It was about eight inches long and three inches in diameter.

Then I spent an afternoon inside a Clipper wing at a place called station twenty-nine; that's almost out to the wing tip. After crawling out the catwalk past the two engines, I finally wiggled myself to the place where we were working. Squirming around inside the structure, I managed to drop the special screws that we were working with. While my partner was chasing



A Clipper in its wartime camouflage paint taxies out into the bay for take off.

after some more screws, I lay there waiting. Suddenly I was bounced up and down and almost deafened by the racket. Someone was walking practically on top of me, but on the outside of the wing.

All our work is not quite so disconcerting. One bright sunny afternoon, while on the beaching crew, we had a great time learning how to run the launch and patrol the areas in which the Clippers land.

Speaking of foreign bases, Ed Napier, Duke Engineer '42, is now serving at a base in the British Isles. We haven't heard much from him, but we expect him back in a couple of months.

I am, like a lot of other people, a dreamer of the stupendous future there is for airline transportation. Though it may be a long way off, someday airliners as huge as ocean-liners will be girdling the globe in daily flights and will be as common as the Southern Railroad. Despite the fact that there will be a big place for engineers in such transportation, that day will only come after engineers and practical mechanics have paved the way.

From left to right on the flight deck: flight engineer, assistant flight engineer, navigator, and assistant navigator.

Engineering Alumni in the Service

The following list is a continuation from last issue. Address additions or corrections to the Alumni Editor for the DUKENGINEER *files and future publication.*

UNITED STATES NAVY

Sherertz, Paul C., BSEE '43, Ensign, USNR, Washington, D. C.

Smith, Walter G., BSME '41, Lt. (sg), Naval Ordnance, Danberry, Conn.

Strickland, Wyatt B., BSME '42, Ensign, USNR, Naval Training Station, Newport, R. I.

Tew, Gilbert W., BSME '43, Ensign, USNR, Teletype Corp., Chicago, Ill.

Tilley, Clarence Ray, -45, A/c, Naval Pre-Flight School, Athens, Ga.

Tompkins, R. S., -46, USNTS, Great Lakes, Ill.

Turner, William W., Jr., BSME '36, Lt., USNR, Naval Air Station, Lakehurst, N. J.

Treut, Walter E., BSEE '39, Ensign, USNR, Pensacola, Fla.

Tuten, Bruce L., BSEE '41, Lt., USNR, Portsmouth, Va.

Vickers, Ronald, BSEE '41, Ensign, Bowdoin College, Brunswick, Me.

Wagner, Richard F., BSME '43, Ensign, USNR, State College, Pa.

Waldron, John W., BSME '42, Ensign, USNR, Cornell University.

Wall, Donald S., BSME '43, Ensign, USNR, Notre Dame V-7 School.

Walters, Frank W., BSME '43, Ensign, USNR, Fort Schuyler, N. Y.

Wauters, John, BSME '35, Lt. (jg), Stamford, Conn.

Weaver, W. F., BSEE '32, Lt., Navy Yard, Charleston, S. C.

Webster, Christopher R., BSEE '39, Lt. (jg), USNR, Navy Yard, Charleston, S. C.

Wells, Richard B., BSCE '42, Lt. (jg), USNR, Dry Dock and Shipbuilding Co.

Wetmore, William H., BSME '43, Ensign, USNR, Brooklyn Navy Yard, Brooklyn, N. Y.

Wood, Robert R., -44, A/c, Naval Pre-Flight School, Chapel Hill, N. C.

UNITED STATES ARMY

Baker, Charles Harvey, Jr., BSCE, 1st Lt., Army, Grenada A.A.B., Grenada, Miss.

Batson, A. W., BSCE '34, Army Engineer.

Berini, Nello R., 2nd Lt., Army, Santanda Hotel, Asbury Park, N. J.

Brisgalski, BSCE '28, Sgt., Army, A.P.O. 3396, c/o Postmaster, New York City.

Brown, Lloyd Lee, -46, Pvt., Army, University of Nebraska, Neb.

Buck, Robert Earl, BSCE '37, Capt., Army, Fort Sill, Okla.

Cameron, E., BSEE '39, 2nd Lt., Army, Perrin Field, Texas.

Cayce, Edgar E., BSEE '39, 2nd Lt., Army, Signal Corps, Drew Field, Tampa, Fla.

DeMaria, Charles J., -46, Lt., Army, Pueblo, Colo.

Dodson, Charles Wesley, BSME '43, Pvt., Camp Davis, N. C.

Green, J. M., Jr., BSCE '24, Cpl., Reception Center, Fort Bragg, N. C.

Hardin, L. L., BSEE '28, 1st Lt., Signal Corps, Fort Monmouth, N. J.

Himalright, L. K., BSCE '40, 2nd Lt.

Johnston, Ronald Alexander, BSEE '42, 2nd Lt., Electronics Training Group.

Jones, J. Latimer, BSME '41, Pvt., Kessler Field, Miss.

Kadie, Frank R., BSME '34, 1st Lt., Ordnance Dept.

Luchans, Warren Felps, BSEE '42, 2nd Lt., in England for special training.

Massell, Lee I., -45, Pvt., Fort Benning, Ga.

Murphy, Gibbons W., BSCE '19, Lt. Col., Medical Corps, Fort Bragg, N. C.

Olson, Thomas, BSEE '42, 2nd Lt., in England for special training.

Pickett, H. F., Capt., ROTC Hqs., University of Alabama.

Riess, Robert C., -45, ASTP, University of San Francisco.

Walker, Fred, Pvt., 266th Engineer Bn., Camp Robinson, Ark.

Wharton, J. P., '14, Col., Baltimore, Md.

UNITER STATES ARMY AIR CORPS

Acer, Charles Donald, BSME '43, 339 CTD (air crew), Furman University, Greenville, S. C.

Beck, Clarence U., BSME '40, 1st Lt., 386th Bomb. Sqdn., c/o Postmaster, San Francisco.

Booth, Roland Jenkins, -46, Miami, Fla.

Creekmore, R. Tazewell, BSEE '32, Capt., San Bernardino, Calif.

Edens, C. C., Jr., BSME '43, 2nd Lt., San Diego, Calif.

Evans, Robert E., -45, San Antonio, Texas.

Felton, Joseph Patton, -44, A/c, Yale University, New Haven, Conn.

Fleming, David George, -46 (uncertain).

Gannon, Frank, -46, Pvt., Kessler Field, Miss.

Gingher, C. H., Jr., BSME '43, 2nd Lt.

Griffith, William R., BSCE '42, Lt., Morrison Field, West Palm Beach, Fla.

Hege, Douglas Warwick, BSME '42, A/c, Yale University, New Haven, Conn.

Hunter, Charles W., Jr., BSME '41, 2nd Lt., Lawson Field, Fort Benning, Ga.

(Continued on page 14)

"PLATTERS"

By William A. Mason, E.E. '46

Thomas A. Edison was a pioneer in the field of the phonograph, having patented a crude recording device in 1877. Not until ten years later, however, after Alexander Graham Bell and his associates had "perfected" a phonograph, did Edison put his toy to commercial use. It is interesting to note that these early machines used hollow cylinders as records. The American Graphaphone Company [later Columbia] was then organized to manufacture under Bell patents. Likewise at this time, Emile Berliner invented the gramophone, which operated with disks instead of cylinders. He marketed the machine in the United States in 1866 through a firm called the National Gramophone Company.

By the end of the next decade the battle lines were well drawn. Edison, though turning out hundreds of thousands of cylindrical records, was directing the greater part of his energies to other projects. Columbia, making both cylinders and disks, was striving hard to assume American leadership, and Eldridge R. Johnson's Victor Talking Machine Company, founded in 1901 as the lineal descendant of National Gramophone, adopted the quizzical talking dog as a trademark. Victor engaged Caruso in 1904, enclosed the horn in a cabinet, and named the de luxe phonograph "Victrola" in 1906. Thenceforth this firm dominated the American market. Victor's success lay in copious advertising, well-made cabinets, and the names of impressive artists. Despite its imitative methods and introduction of the double-faced record, Columbia lagged behind its competitor.

Edison was not a salesman, but an inventor, and when he finally capitulated to public taste and produced a massive cabinet with disks in 1913, his opportunity had been all but lost.

For a long time the record industry operated at a fine profit. However, in 1925 the gross profit fell drastically. The radio had arrived. The first twenty-five years of the century had been prosperous, but now the stockrooms were filled and the merchandise "didn't move." Some phonograph men solemnly prophesied that the industry wouldn't last another year. If these men were judging the war against radio by the kind of ammunition their companies had on hand, their reasoning was flawless. The armament had to come from the outside, and when it came it was at first unwelcome.

To appraise the glittering prophecies now being made for phonographs and records one must go back to Signor Caruso and his assisting orchestra, whose instruments vibrated within a frequency range of 30 to 12,000 cycles. Of these only 350 to 3,000 cycles could generally be reproduced. This discrepancy had not bothered the phonograph companies when business was good. As long as the merchandise was sold there was no need to worry about fidelity. However, the year 1925 ameliorated the general outlook. The problem was solved by a group of Western Electric engineers under James P. Maxfield; they converted the sound waves into electrical impulses, amplified them, and let these impulses vibrate a cutting needle. With this augmented power behind it, the graver was able to chisel vibrations ranging from 30 to 5,500 cycles into the wax, and there seemed to be little doubt but that experimentation could increase the frequency range ever farther. Moreover, the technique of recording became more genteel. A large orchestra could now be placed in a spacious room, and the microphone moved far enough away from the performers to blend the sound reflections emanating from the walls—in brief, what had been a terrible orgy became a painless, even pleasant experience. Today bands and vocalists are recorded in acoustically-balanced, air-conditioned studios; large orchestras, in their regular concert halls.

Now H. C. Harrison, of Western Electric, developed the electrical phonograph, an instrument that was capable of reproducing greater volume and a wider range of sound. When Western Electric demonstrated the new machine to the Victor officials, it received a cool reception. They pointed out that the increased scope would make the "Victrola" abhorrent to those who were accustomed to miniature music-box quality. But business was so bad that a thrust in the dark seemed to be advisable. "Thank God," said Shumaker (later Victor's president), who negotiated with Western Electric, "that these electrical records were developed by the telephone people and not by a competitor."

As soon as it was feasible Victor brought out the

(Continued on page 18)

The author and his semi-commercial instantaneous recorder.

Heritage of the Inn

By William F. Becker, E.E. '46

All students of Duke, at one time or another, have passed Epworth and laughingly made remarks about the battered condition of the old "Wreck." Few of us realize that this shamble was formerly one of the proudest buildings in Durham, and was called by many architects a perfect example of the architecture of the period. The original building, named "The Trinity Inn," covered over one acre of ground, was three stories high; in fact, large enough to accommodate approximately 250 students. Originally constructed in 1892, "The Inn" was for thirteen years the home of many Trinity College students. In 1905 the building was condemned and subsequently closed. The following year extensive repairs were made and it was reopened for student use. In 1914, after twenty-two years of hard usage, the officials of Trinity College decided that it would be profitable to raze the building, leaving only a small portion of the original. Thus, we know the Epworth of today.

When Trinity College was expanded, its President, John Franklin Crowell, realized the need for a building that would serve as living quarters for students and bachelor professors. An architect from Washington, D. C., was hired; and in 1892, a building of seventy-five rooms, two parlors, a library, a reading room, a dining hall having a seating capacity of 250, a large kitchen, an office and waiting room, was constructed at a total cost of $31,679.30. The funds were donated by Mr. B. N. Duke and other citizens of Durham. The "Inn" was heated by a warm air system, which caused no end of trouble, and lighted by electricity. The entire structure was finished with bright North Carolina pine. The building had no definite shape or design, being built purely for comfort. The halls, passageways, winding stairs, and alleys confused many people; mainly, strangers, who, once they had entered the catacomb had a difficult time in finding their way out. One stranger, unable to navigate the maze of hallways, asked a student to show him a way to the free and open spaces. The student pointed to a window from which a rope dangled leading to the ground. As he did so, he solemnly explained to the stranger that he had lived in the "Inn" for three years, but that the window still remained his only sure manner of going in and out.

Furnishings for the old building are to be credited to Dr. Frank L. Reed. He planned for the payment of all furniture by individual and group subscription; the contribution being recognized by a small printed card placed on the inside of each door.

Soon after the "Inn" was built, it became apparent that the structure was entirely too large. The college authorities had great trouble in operating the large dining hall, and soon turned the operation of this project over to the boys themselves. After the completion of the main building the "Inn" was left to the Freshmen students. On the "Inn's" broad porches many Freshmen became oriented to college life, and in the course of conversation many secret and revolutionary societies were formed. Freshmen hazing by the Sophomores and Juniors was predominant; and the home of the boisterous and noisy, yet thoughtful, Freshmen became known as a "hotbed of American college spirit and manhood."

Today the "hotbed" remains in the battered old "Wreck." Now the headquarters of the civilian students of the Engineering College, who are not subject to the regulations of the Navy, Epworth remains the one place on the campus where men who came to this school of their choosing can carry on the traditions of Duke—those traditions which are rapidly passing away. Unfortunately, someone has forgotten these students. As each day passes, Epworth, now in its fifty-second year, falls further down the ladder of ruin. Poor heating, poor sanitation, and, most important of all, poor lighting have made conditions deplorable. With a lack of materials due to the war, little can be done now, but it is the unanimous opinion of all who have lived in Epworth that after the war this—the oldest building on the Duke Campus—should be razed and a new building be erected in its place.

A photograph of the mammoth structure as it stood a half-century ago.

Time for Another

As a semester rolls to an end, every Duke Engineer begins to look forward to another Engineers' Ball. Letters to the best girl back home, telephone calls to the co-eds, and cross-campus yells begin to bring the date lists to the old high as the many Engineers make plans for their weekend that comes but once a semester. An old Duke Engineer can not help looking back over the other fourteen dances and remembering the good times that were had.

Many stories of these fellows, their dates, and their fun are related to the numerous transfer students as well as to the new Duke men. Laughs are still proper because there aren't too many changes as far as the dances go. Decorations, outlawed by University rules at present, were a thing with which only one other dance on the campus could compare. The small Southgate gym—bare, dirty, and far from being the nicest place to have a dance—has been the site of a one-night stand for a battleship, for a haunted house, for a Christmas home, and even for a sad, blues setting. Three nights before this dance, no one would ever know that in a few hours things could change so much; but when these Duke Engineers get in behind the saws, pins, paper, and other decoration essentials, things begin to happen and in a hurry.

Perhaps the best story of previous dances has been the one behind the haunted house. The dance committee chairman and his committee had long decided upon the theme of their dance because of the unlucky day upon which the dance happened to fall: Friday, the thirteenth. That may not have been unusual but when on Thursday night there still had been no work done on the decorations, several men began to wonder whether the leader had not let them down. After several detours—by places where drinks in mugs are sold—and many delays, the decorations committee finally arrived. Many say that they knew not what they were doing, but the paint, the nails, the paper, and the Southgate gym soon merged into one never-to-be-forgotten haunted house.

The past three Engineers' Balls have been in the Woman's College gym because of the ever-increasing enrollment in the Engineering College. These recent dances have been "Engineers'" dances, but a far cry they have been from the ones that preceded them. This year, plans have been developed to return the Engineers' Ball to Southgate and to its former standards. Such are the plans at present. All the Engineers are looking forward to this dance: especially those Engineers who know what the dance has been in Southgate. Decorations are gone, because of the University ruling, but not gone is the fact that there is still a little of the spirit of the old Duke Engineers left, a spirit which guarantees that a dance for the Engineers in their own dormitory cannot be beaten.

"Reed's Ride"

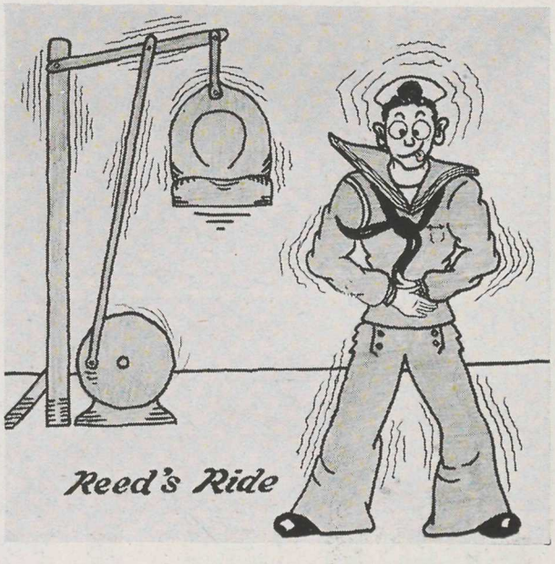
By Hal E. Gypson
E.E. '44

All right fellows, here it is!—all that can be told about the invention that Professor Reed, of the Mechanical Engineering Department, is working on. We'll call it "Reed's Ride" for lack of a more technical name. For the past year and four months Professor Reed and Dr. Lyman of the Duke Hospital have been combining their technical knowledge, and have evolved a fiendish machine for bouncing a man around until he has attained a pale shade of green, an inevitable result of motion sickness. The machine is designed to simulate all forms of motion which produce sickness, from the ordinary rocking of a boat to the oscillatory motion of a tail gunner in a bomber.

Ronald S. Rose, senior mechanical engineer, assisted with the calculations and drafting in its early stages. John H. Sweitzer, of the Civilian Public Service Unit of the Duke Hospital, working under the direction of Mr. Reed, has been doing some of the design and drafting.

Be careful you sailors and civilians! Don't walk up to anybody and say "bounce me brother," because that is exactly what he might do.

Cartoon by L. H. Wilson



Swimming Pools and S

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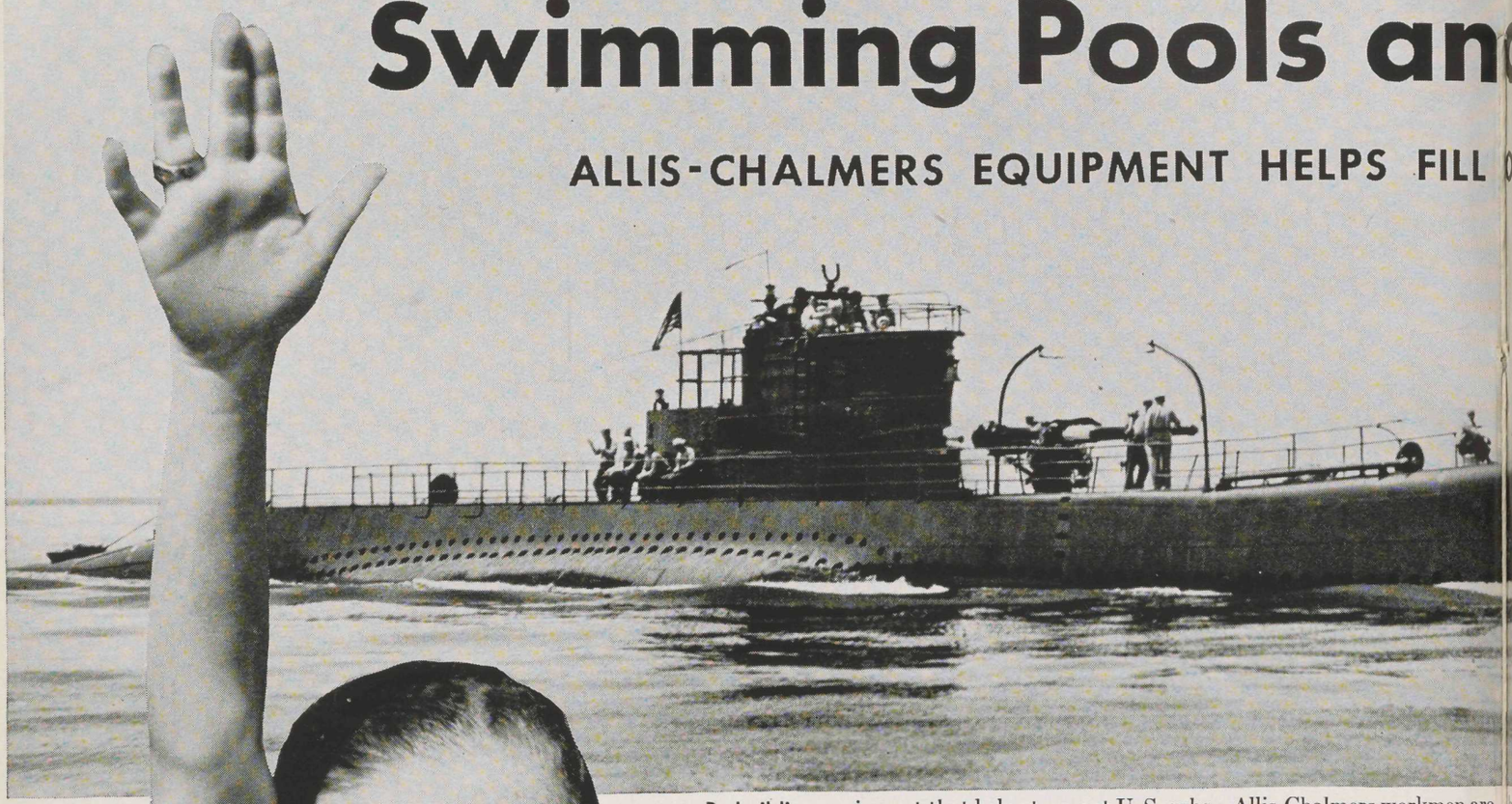

By building equipment that helps turn out U. S. subs—Allis-Chalmers workmen are helping to sink

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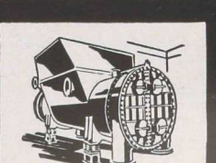
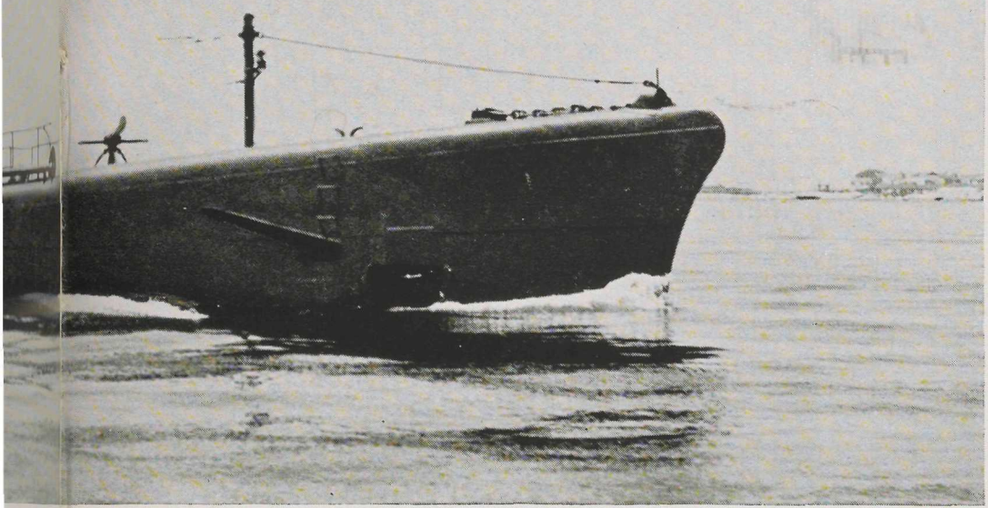


ENGINES AND CONDENSERS

CENTRIFUGAL PUMPS

s d Submarines_

ELPS ONE_BUILD THE OTHER!



Chalmers with helping to sink the Rising Sun!

WE'RE WORKING for "THAT MAN" (Soldier talk for Uncle Sam) today! More than 1600 war and war-industry products are pouring out of our plants... machines that help make everything from subs and planes to soldiers' shoes.

Allis-Chalmers equipment is also helping to pump water to our cities...to produce 8 out of 10 U.S. loaves of bread...to do hundreds of jobs which are vital to the health and morale of the Nation.

And Allis-Chalmers engineers in the field are helping manufacturers *produce more*, not just with new machines—but with machines now on hand!

Every one of the thousands of Allis-Chalmers men and women is working *all out* for Victory—and every one is gaining production experience which will be invaluable to the Nation in the Peacetime rebuilding program which must follow!

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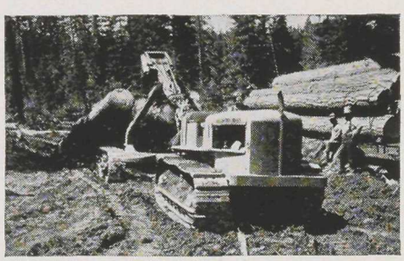
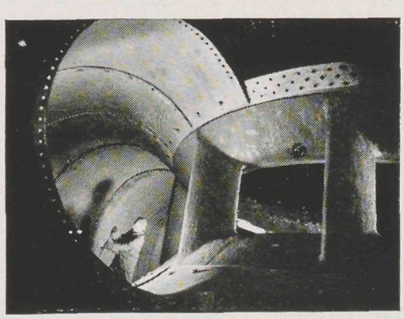


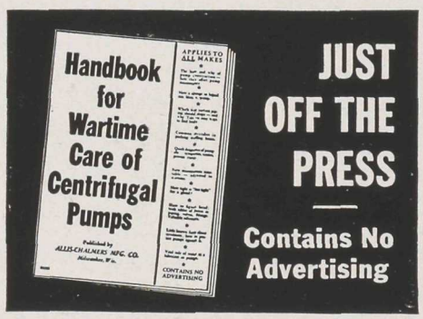
Allis-Chalmers is the largest supplier of sawmill equipment in the world!



A-C equipment puts rivers to work—supplying power for the war effort!

VICTORY NEWS

Converted Carriers Aid Navy! Official Navy Photos reveal that merchant vessels are rapidly being converted into auxiliary-aircraft escort ships to protect convoys from subs and bombers. On some ships already converted a great variety of A-C equipment has been installed—including main propulsion turbines, auxiliary generating sets, condensers, centrifugal pumps, motors and control.



FREE! Write for your copy of this centrifugal pump maintenance guide! Jam-packed with *practical* suggestions—new ideas you *need* today! This valuable new book belongs in *your* technical library!

New "Electro-Cooler"! Vitally needed increases in power transformer capacities can now be obtained quickly with a new system of forced-oil cooling that saves 25% in critical war materials on new transformers.

This new Allis-Chalmers cooling unit, called the "Electro-Cooler," will step up capacity of transformers already in service by about 20 to 60%.

This new unit makes the forced-oil system of cooling transformers highly practical because it is built compact, factory-assembled and factory-tested at high pressure to minimize the possibility of future maintenance. If transformer has radiator valves, the unit can be removed without draining transformer oil and parts can be replaced without delay in transformer operation.

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Dear Danny . . .

From over at Norfolk came the news that things were going well for all the Duke men there. The letter was from "Pinkie" McMaster ('43). While over in Norfolk, he saw Bruce Tuten, but before he could park his car and get out, Bruce had disappeared. I wonder if Bruce knows that there are some Duke men near him. Probably the best news from that class is that Don Schlerf has been married. The occasion was "quite *the* thing," so I am told, and was really home-coming for a good many of their class. Mac was best-man, Jim Laros and Tom Miller (all Navy men) were there, as were Fred Crofts, in from the Merchant Marine, and Al Hunter (Class of '41). Al is now with Bethlehem Steel Company. Present, too, were several Duke girls. Frank Jackson (Oct. '43) has now left the Norfolk area for Annapolis and midshipman school. Going along with him are Bill Hardy and Bill Witschen from the same class.

Although most of the fellows (1942) are still at stations in this country, one has made the jump. He is Bill Wetmore. Last reports are that he is in England. Tiny Hill and Rod Hottel are on the east and west coasts respectively. From the same class, though not a graduate of Duke, is Bill Lee. Bill, who transferred to Clemson during his freshman year, has recently been commissioned in the Seabees. It is rumored that Big John Armour is with Lee down in Virginia. He is also an Ensign. Dave Beary was, at last notice, selling shirts in a department store as he awaited his commission in the Navy. And the fellow who usually pulled the unbelievable did it again. After serving for some four weeks in the Army as a private, John Carr suddenly appeared in an Ensign's uniform. His commission, delayed by some means, came through after he was inducted into the Army. So, from a private one day to a commissioned officer the next, is the story of Mr. Carr. Another Electrical Engineering graduate, Steve Clark wrote us a letter the other day telling that he and Vance Martin were with G. E. at Schenectady. They are working on research there.

Claire Gingher came through Durham the first of the month. He had gotten his commission at Yale a few days before and was on the way to the west coast and his new station. Likewise did Pat Felton visit us. Both are in the Air Corps although Claire is in the ground forces. It is almost an everyday occurrence for the old fellows to drop in and spend a few hours or even a day or two. Two facts are true generally: they have their commission, and end up on the East Campus with the same girl they dated when here in school.

That almost takes in the entire '42 class with the exception of Sid Gulledge. He is in the Navy and stationed near New Orleans.

Sincerely,
Bill

The New Lanier

By Charles Myers, E.E. '44

To the northwest of Asbury Hall and on the foundations of the old Lanier Hall, a landmark of Trinity Park School, has risen a new building possessed of an efficient simplicity.

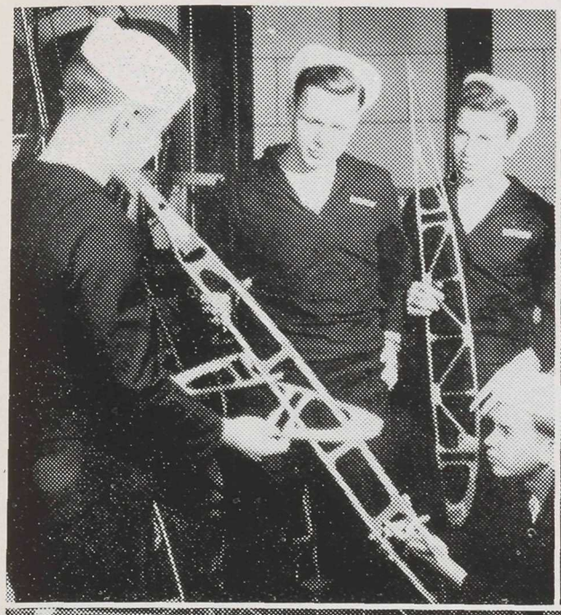
The greater part of the aeronautical models in this building have been collected by Mr. Hoffer, formerly Instructor in Mechanical Engineering. During the search for engines, Mr. Hoffer found an old OX-5 engine, made a series of bids for it, and after making the purchase found that he had not bought just an engine but an entire plane all for the price of ninety dollars. A Curtis Robin was obtained from the Raleigh Airport with the help of Mr. Brower. This was a valuable addition to the collection, for the sturdy Robin has been the hero of many adventures, in both fact and fiction. Still another model has been provided by the loan of a "Cub" from the manufacturer. All the planes have been arranged so that a detailed study of the construction may be made.

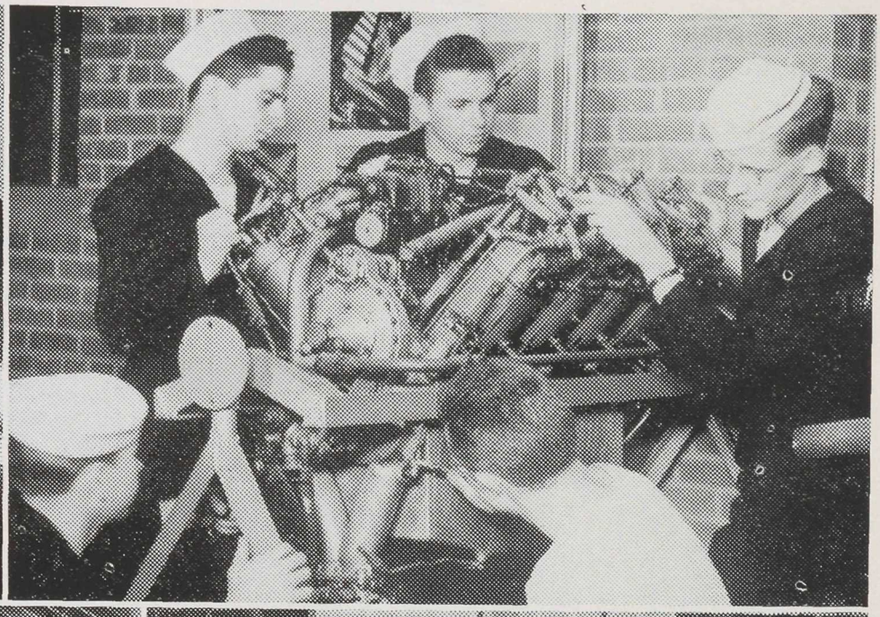
The growth of a complete engine laboratory has been greatly impeded by the present conditions, but five have already been obtained through various sources. A Lycoming light plane engine has been placed in the cradle dynamometer of the test cell for a complete study of operation characteristics. The engine test is completely controlled at a compact control panel placed at one side of the cell so that the operator can make a complete set of observations. The fixed engines offer a concise history of the powering of aircraft, from the original radial engine in which the crankshaft was fixed and the entire engine rotated with the propellor, to the modern design such as the *Wright Cyclone* whose only large rotating part is the crankshaft.

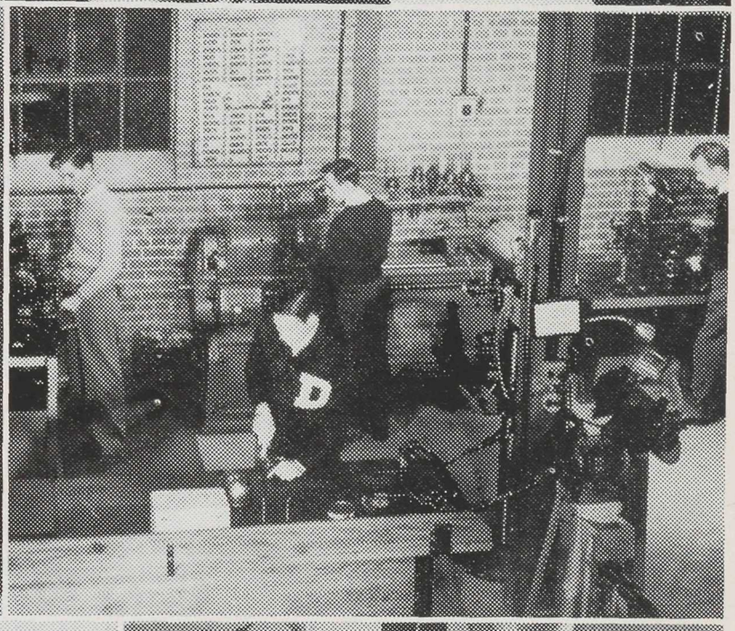
The various wing section models constructed for investigation may be tested in any of three ways. The wind tunnel is used mostly for complete models. The airflow over a wing section may be simulated by drawing a wing section through water covered with aluminum powder in a long tank. Simple as though this last procedure may seem, Mr. Hoffer spent a great deal of time circumventing practical difficulties. The last of the three methods is the use of a smoke tunnel, a form of wind tunnel designed especially for wing sections. It consists of a transparently covered section in which the performance of the model may be observed, a smoke generator, and a fan that forces air over the foil surfaces.

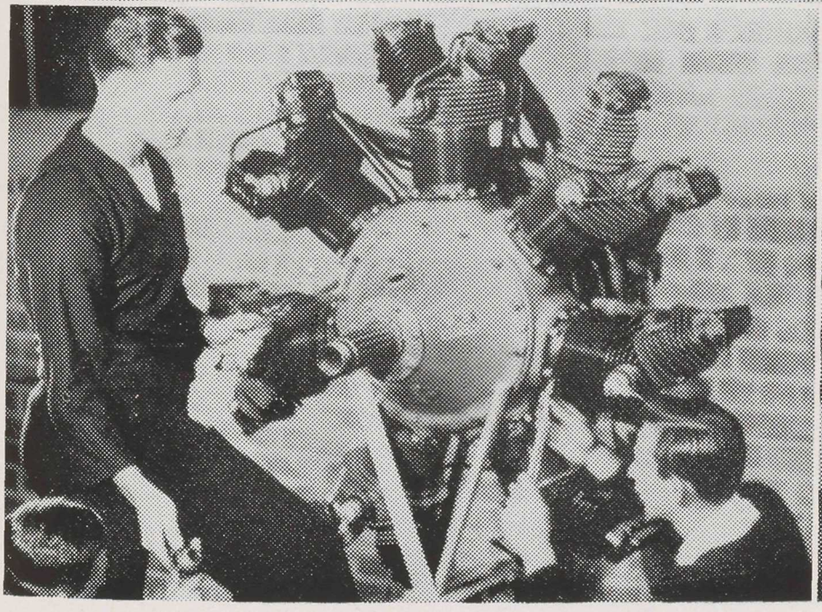
Duke now has the firm foundation for the development of a detailed aeronautics course after the war.

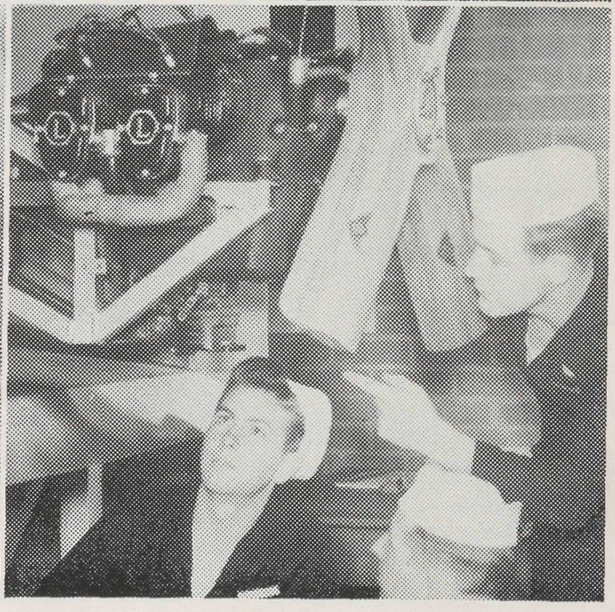
INTERIOR PICTURES OF THE NEW LANIER











INTRODUCING THE PROFS

Staff cartoonists Heyward Marshall and Buzz Chapman depict the faculty. Dunham Seeley reports on the lives of these well-known M.E.'s

THOMAS C. COOKE—Instructor in Mechanical Engineering. After attending the North Carolina State College, Mr. Cooke practiced engineering for ten years before he began teaching. During this period, he was employed by Dupont and the Tomlinson Corporation. In 1942 he was employed as a consulting mechanical engineer for the architectural firm, Atwood and Weeks, while they were constructing the new buildings for the Naval Pre-Flight School at Chapel Hill. Just before coming to Duke on July 1, 1943, he was working as a designer for a new heating plant at the Camp Lejeune Marine Base. Shortly after he began to teach, "T. C." made it plain to the boys in "C. P." class that "Bull don't go here!" His extra-curricular activities include memberships in American Society of Heating and Ventilating Engineers, for which he was secretary of the North Carolina section, and the North Carolina Society of Engineers. He is a registered Mechanical Engineer. Home movies is his main hobby.

WILLIAM A. HINTON—Assistant Professor of Mechanical Engineering. After receiving his B.S. in Mechanical Engineering from Georgia Tech in 1930, he went to Yale where he earned his M.S. in 1931. Then he went back to Atlanta and taught high school for a while before becoming a member of the faculty at Georgia Tech. While at Tech, he worked with the State Engineering Experiment Station. After coming to Duke in 1942, "Bill" won the admiration of all his students because of the perseverance he displays in keeping his pipe lit. His outside interests include memberships in the A. S. M. E. and the Society for the Promotion of Engineering Education.

HULME H. PATTINSON—Instructor in Mechanical Engineering. "Pat" is Canada's contribution to the College of Engineering. A former Duke student, he received his B.S. in Mechanical Engineering in 1941. He earned a B.A. degree in 1942 from the University of Western Ontario. Then he entered Osgoode Hall, a Canadian Law School, but interrupted his study of law, when he began teaching on July 1, 1943. His Lincoln Zephyr, which, incidentally has been driven 225,000 miles, is very popular with the boys in his eight o'clock classes—especially on the mornings when it won't start! His practical experience consists of summers spent with the Central Pipe Line Co., Ltd. of Southern Ontario. He used to be quite a yachtsman, but he didn't find Crystal Lake very suitable for boating, so he has just about given up the sport. He is a member of the A. S. M. E. and Delta Upsilon.

Engineering Alumni in the Service

(Continued from page 6)

Love, Roderick Milnor, Jr., BSEE '44, A/c, Maxwell Field, Ala.

Lynch, Richard James, BSCE '43, Pvt., Kessler Field, Miss.

McMahon, Wallace, -46, Pvt., Air Borne, Fort Benning, Ga.

Pearson, George Albert, Jr., BSEE '35, Sgt., Lowry Field, Denver, Colo.

Perinovich, Robert E., BSCE '41, Capt., 338th Fighter Group, Tallahassee, Fla.

Price, Robert C., BSEE '41, 2nd Lt., Instructor in Navigation, Selman Field, La.

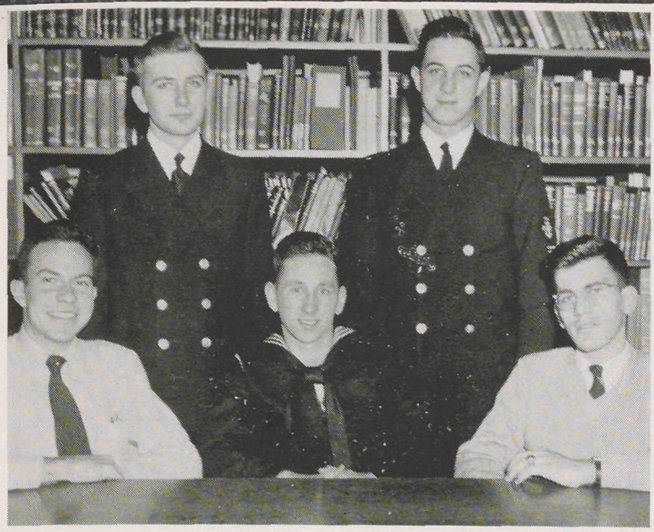
Schoonover, Carleton M., BSME '41, Pantlind Hotel, Grand Rapids, Mich.

Speas, Herbert Lee, -45, A/c, Maxwell Field, Ala.

Thompson, Edwin Spencer, -46, Pvt., Miami Beach, Fla.

Underwood, Jack Dean, -45, A/c, Rock Hill, S. C.

Werner, A. H., '33, 2nd Lt., 38th Inf., Camp McCoy, Wis.



Left to right: Ted McLaughlin, R. R. Rose, George Beer, Buddy Levin, and Bill Dackis.

Delta Epsilon Sigma at Duke

Delta Epsilon Sigma was organized at Duke University in 1931 by a group of far-sighted young engineers who recognized the need of some sort of an honorary society which could promote standards of scholarship, leadership, character, and service in the College of Engineering. After a somewhat shaky beginning, the society has been gradually molded into the leading organization of its kind on the engineering campus. The activities of the society, from its very beginning, have made a lasting impression on the spirit of the engineering students.

In the past, the activities of D.E.S. have included sponsoring of the annual Engineers' Ball, fostering of better relations between faculty and students, orienting new students into the College of Engineering, holding open houses for prospective engineering students, entering floats in the annual homecoming parade, helping backward students in their work, sponsoring the annual Engineer's Show, and acting as the guiding student organization on the engineering campus. While many of the functions of the society have been taken over by the E.S.G.A. since its organization, or by the Navy during this wartime emergency, D.E.S. still acts as a sort of coordinating body in the College.

Soon after its founding, the members of the society began to feel the need for a national engineering honorary fraternity at Duke. As a result D.E.S. has taken upon itself the task of pledging the outstanding national engineering honorary fraternity, Tau Beta Pi. While as yet there is not a chapter of Tau Beta Pi at Duke, it is hoped that after the war it will be possible to obtain a chapter, the deciding factor being the size of the graduating class from the College of Engineering.

At present the society is working on an activities bulletin board for installation in Asbury, and a Canteen for installation in Southgate. The society has also made plans for the orientation of the new students and transfer students who will be entering the College of Engineering for the first time in March, 1944.

Engineer's Bookshelf

We introduce to our readers Mrs. Dennis, the Engineering Librarian.

In old Asbury there is a room full of books. This, gentlemen, is the library. Little, big, old, and new books "warp" the shelves. The oldest date back as far as 1871, and new ones are ordered all the time by your professors. . . . (I'm really sorry you don't get to see some before "they" get them.) . . . Yes, many are reference and text books, and encyclopedias. But it is surprising how many good biographies and novels there are. . . . With most of you the light has dawned and you know who T. A. Edison is, and Alexander G. Bell does ring a few bells. . . . Do you know about Warren Webster, John Stevens, Steinmetz, McCormick, or James Watt? . . . Did you know that among many things Alfred Nobel invented dynamite? . . . And you would no doubt like to "get a hold" of that fellow Robert H. Thurston. (He belonged to the group of pioneers who laid out the curriculum for a Mechanical Engineering School.) . . . In the novel "Slim," we read about a hero lineman of this name. . . . "Pigboats" is a submarine story flavored with lieutenants and sweethearts. The movie from this book was "Hell Below." . . . To the men of the Navy is dedicated "On the Bottom." . . . Those interested in radio broadcasts, especially people like Jack Benny, Fred Allen, Bob Hope, or the Aldrich Family, would be interested in "Best Broadcasts of 1939-40." . . . And speaking of all kinds of books, one of the professors certainly got a surprise the other day when he came in and asked for a book he had ordered, "Secretary to the Engineer." . . . I handed it to him, and was he surprised when he opened it and found nothing but shorthand from cover to cover. . . . I can't imagine what he thought it was about! . . . Anyway, if any of you are having trouble writing, you might try shorthand. . . . Another new book is "Janes's Fighting Ships." . . . Those knowing Professor Lewis no doubt have heard about "Jane" as he always says. . . . It's one of those picture books of warships and armaments of all types. Naval and military aircraft; mail and passenger steamers; marine oil engines; steam engines; and, well, just about everything in the line of ships and their parts. . . . Of course this is just an inkling of the variety of books to be found in the Engineering Library. . . . The best way to know the books better is to come in and browse around. . . . And I guess that this is a good place to say something about the use of the library. . . . Would it be too much to ask you to bring books back with all their pages? . . . And when you get books off the shelves, not to put them in up-side-down? . . . And not to use the tables as beds except on Monday mornings after an especially bad week-end? . . .

A Message from Captain Bob

(Continued from page 3)

boats, and guns. Remember, though, that the knowledge you are storing up now is the equipment with which you will work in the future. Mathematics will be your foundation; without it your structures will be weak. Your tools will be the specialized subjects you are taking. From these you will help create some aid to victory.

Many of you must be wondering about your positions after the war is won—when the world turns again to peaceful vocations. Many of you will still be training for the war when this peace comes. At this time, as Engineers, you will be in an enviable position. Your foundations and technical knowledge are basic and will be easily adapted to other fields. You will be able to take your place in a peacetime world as easily as you can in a war world.

The only regret I have for any of you men going through college with conditions as they are is that you are missing some of the fun of the peacetime College of Engineering. Needless to say, "peacetime" is not synonymous with "peaceful" where the Durham Engineers are concerned. I don't believe that even a war could change that, and I imagine you still have the firecrackers in the walls and steam rollers in the back yard. You've heard many flag-waving speeches about what you're fighting for, about democracy, the Bill of Rights, and the Four Freedoms—but what this actually means to us is the right to have a University like Duke and a College of Engineering like ours. We're all fighting for Southgate and Giles and the Chapel, and the continuance of Duke as it is. Our Bill of Rights includes the right to study under professors like Bird, Hall, Seeley, and Wilbur, the right to flunk their quizzes (as we all did), and the right to spend evenings in the Tavern. You've heard it in a lot prettier words, but that's the reason we are all doing what we are doing today. You men hold the spotlight; you men will shortly wield the power. The seats of learning have always been the first to be attacked and controlled by the aggressive dictators because they have realized and feared the strength of a liberal education.

Remember what a privilege it is to be able to study at a University like Duke. Make the most of it because everything—yes—everything you are learning now will be of benefit to you later. You are training for an important job. When you have completed your Engineering Education at Duke you will be in an excellent position to help bring about a speedier peace—a peace that will make our world a near-perfect place in which to live.

A Man with an Idea

By L. C. Saunders, M.E. '44

In 1898 Trinity College took a step forward that was destined to mark the South and our University as a leader in education. In this year Trinity Park School arose from the expanse of land that is now the College of Engineering. In this school was conceived the idea of standardizing education, that is, forming a basis on which a student could enter college. In the period immediately preceding the erection, little or no standards had been set for a student's eligibility to enter college. This effort succeeded, although there was small popular support at the beginning. As can be seen now the results were worth the wait.

Here also lies the traditional rivalry with Carolina. Trinity College and Carolina were making bids for supremacy in the field of education in the South, and with the origin of this idea of standardized education, Trinity College took a tremendous step forward. From that time on there has been nothing but competition between the two schools—rivalry that will never cease.

Living in this period there was a man who felt keenly all this rivalry. He has taught thousands of students and has taken a personal interest in their welfare. He has watched with shining eyes their success in this world of ours. He is part of our traditional rivalry with Carolina. His name is Dr. Aldridge, former Master of Trinity Park School—a man with an idea.

You may wonder how and when the Engineering College arose. Early in 1922, due to necessity, Trinity Park School closed. It had served its usefulness, but from its embers rose the College of Engineering—not as we know it today, but as a group of small, struggling, poorly-integrated Engineering Departments. The fact that its beginning was humble does not matter, because it carried with it an idea: a small college within a great university, with the advantages to be derived from both identities. Professors Seeley and Bird, and a few others have seen that small insignificant group of Engineering Departments start on the path which is being followed today: a path nearing the goal which they helped set. Today our College is assuming a place of increasing importance as a well-knit, compact, efficient college in an ever-developing Duke University.

"Platters"

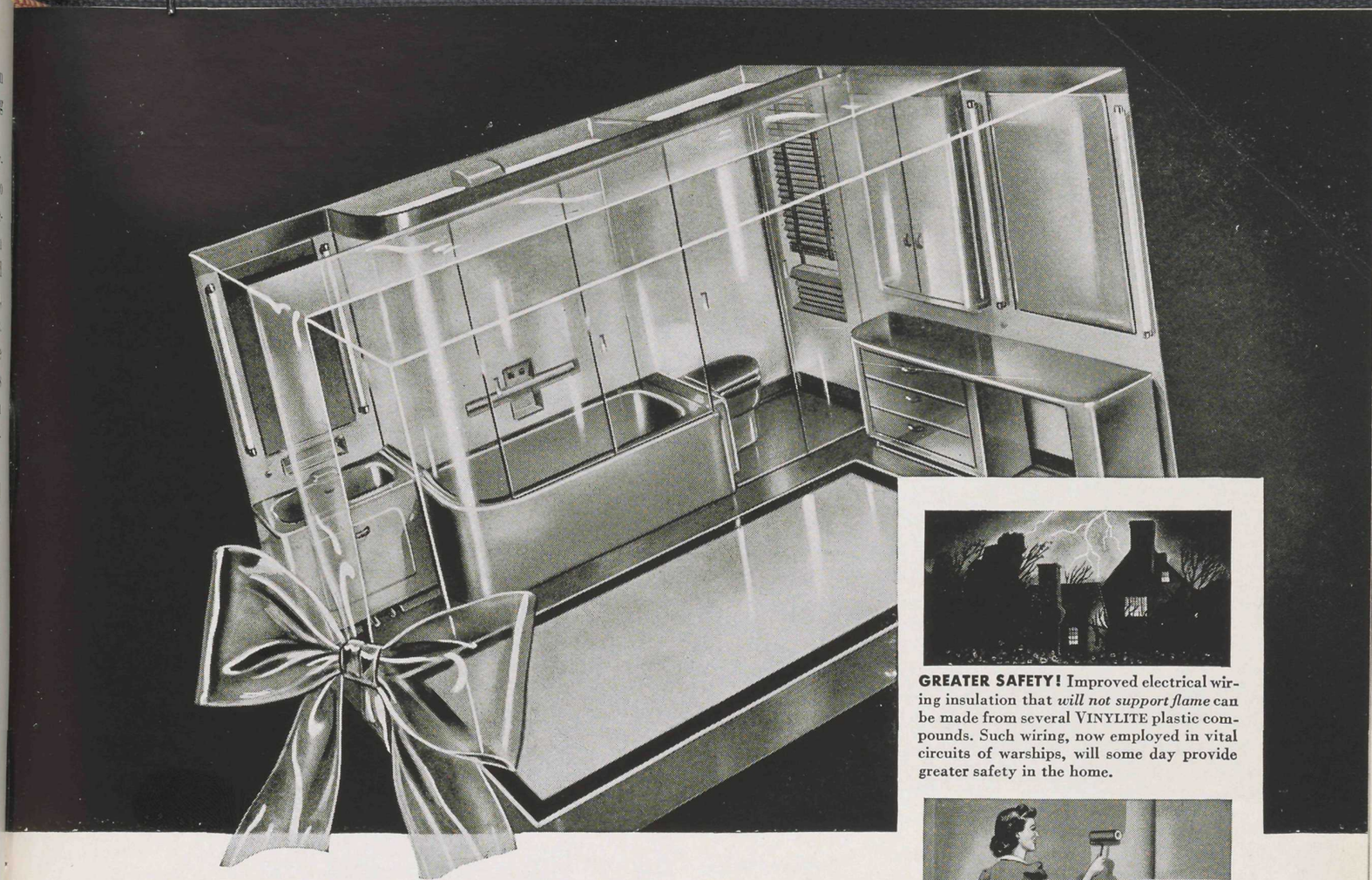
(Continued from page 7)

Orthophonic Victrola and electrically recorded discs, and accompanied this move with a voluminous quantity of advertising. Columbia countered with its "Vivitonal" machines; and Brunswick followed with the Panatrope, which operated on a principal that is still employed today. The panatrope, in effect, reversed the electrical recording process in reproducing, using an electromagnetic pickup on the record, a tube amplifying unit, and a loudspeaker.

The old controversy between exponents of laterally-cut and vertically-cut or "hill and dale" records is also coming up again. In the grooves of a laterally-cut record the needle vibrates from side to side, held between wave flanks of the groove walls. A vertically-cut record is one in whose grooves the stylus vibrates up and down, "riding" the surface fluctations as a boat rides waves. The chief disadvantage of the lateral groove is that the needle instead of "tracking down" its center, flounders from side to side as it takes the curves. This action causes a fogging or a lack of distinctness of each instrument or voice.

The quality of the lateral-cut disc can be developed to approximate that of the "hill and dale," but this requires great manufacturing precision. Professor F. V. Hunt and Mr. J. A. Pierce, working in the Craft Laboratory at Harvard University, have devised a theoretical solution involving a ball stylus that does not "track" in the bottom of the groove but rides the sides, maintaining a positive contact all the time. Since this imposes special requirements on the reproducer, commercial application has met with difficulties.

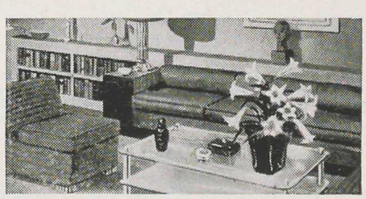
It may be that the practical objections to the "hill and dale" record have been exaggerated; however, it would cost comparatively little to cut vertical duplicates of the lateral records when recording. The master discs could be stored away for two or three years, while the standard and classical catalogue was being built up, and then sold along with the assurance that this phonograph will play both the old and new types of records. A pickup for such a machine is already in use. This plan, seriously exploited, might supply the stimulus that the record industry is certain to need after the war. There are now no home records of true high fidelity, that is, with an undistorted range extending up to 8,000 and down to 40 cycles. Nor are any phonographs generally available that would reproduce such records satisfactorily. But there *are* such records and phonographs in existence, and they are being played every day. The World Broadcasting System, for instance, has a large library of these discs, which are loaned to broadcasting stations to serve as "filler" between programs. Some of these records are capable of reproducing a frequency range from 30 to 14,000 cycles, of encompassing every fundamental and overtone that is easily discernible by most people of average sensibility. These records come closer than any others to fulfilling Mr. Edison's claim for his early phonograph: "Just as loud, just as sweet, just as clear" [as the original sound]. But the reaction of the companies to arguments for the vertical cut is a negative one, rationalized by the statement that a laterally-cut record can be produced to equal the best "hill-and-dale" disc. It is hoped that this reactionary attitude will soon be changed, but in any case, the public is justified in anticipating rapid progress in the field of sound reproduction.



GREATER SAFETY! Improved electrical wiring insulation that *will not support flame* can be made from several VINYLITE plastic compounds. Such wiring, now employed in vital circuits of warships, will some day provide greater safety in the home.

MORE BEAUTY! New *washable* water paints based on BAKELITE resins, will bring new beauty to homes. These paints are inexpensive . . . and *easy to apply!*

LESS EXPENSE! Use of BAKELITE molding plastics in making washing machines, refrigerators, and many other household devices and fixtures can mean lower-priced, longer-lasting equipment for you.



LESS WORK! Easier cleaning of plastic-treated walls, ceilings, and floors. Plastic furniture and upholstery that are easier to keep clean. Yours in the future!

Plastics Will Mean Better Homes

. . . *and more of them!*

EVEN TODAY, plastics men can vision a bathroom with practically everything in it made of plastics or containing plastics in some form. Imagine such a bathroom, costing less to manufacture, to ship, and to install, delivered *as a unit* to your home!

The raw materials to make better homes with more bathrooms and finer kitchens come true are *in existence today* . . . in VINYLITE and BAKELITE resins, and plastics made from them.

BAKELITE resin-bonded plywood, like that from which planes and torpedo boats are made, can be used to make floors, walls, ceilings, and furniture.

The type of plastic film used in waterproof, chemical-resistant food bags and rifle covers can be fabricated into mildewproof shower curtains. VINYLITE resins can also be made into rot-resistant floor coverings that can be walked on millions of times *without showing appreciable wear!*

Our engineers know from the record of VINYLITE plastic-coated life raft sails, sleeping bags, and life preservers, that VINYLITE plastics and compounds can be used in the future to bring you wall coverings, window curtains, and furniture finishes that will outlast anything now available.

Under heat and pressure, VINYLITE and BAKELITE plastics can be molded into numberless useful forms. Experience gained in molding war equipment will help to bring you such things as molded plastic furniture which will be lighter, easier to move, easier to keep clean!

Spun plastics made from vinyl resins are resistant to rot. Right now, such plastics are used for making jungle hammock ropes and vital chemical filters. They also can be fashioned into draperies, upholstery, stockings, and other articles of clothing ...sun-proof, water-proof, and moth-proof!

VINYLITE and BAKELITE resins and plastics, and many new techniques for using them, are peacetime research achievements of CARBIDE AND CARBON CHEMICALS CORPORATION and BAKELITE CORPORATION, both Units of UCC. Fabricators converting these raw materials into finished articles are making them mean more and more to you.

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The Oxweld Railroad Service Company
The Prest-O-Lite Company, Inc.

PLASTICS
Bakelite Corporation
Plastics Division of Carbide and Carbon Chemicals Corporation

BELL BOTTOM BREEZES

Compiled by Willie John Scanlon, M.E. '46

Pretty girl wanting to tee off on first hole of golf course: Would you like to play around with me, sir?

Driver of car: (unfamiliar with the road) I take the next turn, don't I?
Muffled male voice from the back seat: Like hell you do!

He: Dear this is heaven.
She: Well, I'm not a harp.

Cop: Hey, don't you know you're not supposed to park on the highway and make goo-goo eyes!
Him: Aw don't be silly—when a guy has to goo, he has to goo.

She: Will you get me some lipstick, dear? You know what kind I use.
He: Don't tell me. It's on the tip of my tongue.

He: I'm not feeling myself tonight.
She: You're telling me.

West Campus V-12 Lament
I once knew a girl named passion.
I asked her for a date.
I took her out to dinner
Gosh how passionate.

Union breakfast:
Hey, bud, are those real sausage?
Naw, just hamburgers in tights.

He: I see dark spots in front of my eyes.
She: Good, let's park in one of them.

Then there's the one about the girl who stole her mother's corset and didn't have the guts to wear it.

And the embarrassed Pegreen House girl who on the trip home looked under the bed as usual while sleeping in a Pullman upper.—All right we got the Pullman upper the same place we got the girl.

As Mark Antony said to Cleopatra when he found out that her palace didn't have a bathroom—Why, Cleo, that's uncanny.

The best way to stop a crying baby is to give it a bust in the mouth.

Stepback and the hungry five: Is the Ark full?
Doorman: No, we need some more jackasses, come on in.

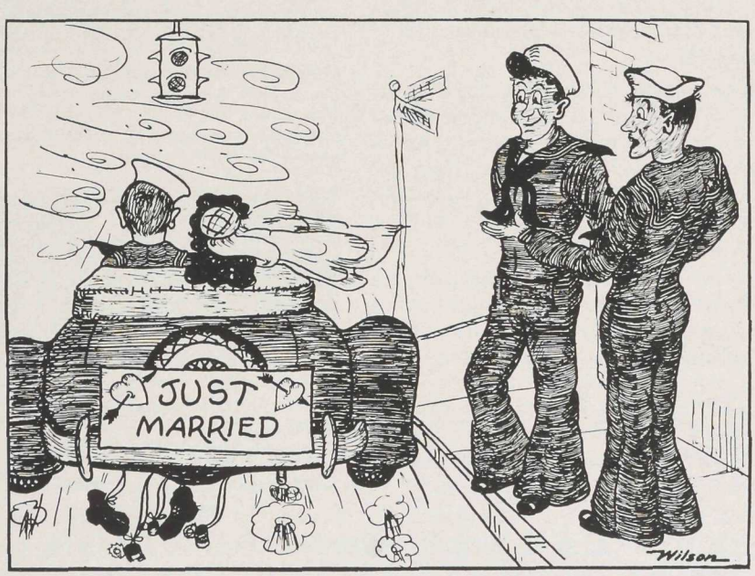
Old maid: (to hotel clerk) This room has a chink in the wall.
Clerk: Well, what do you want for two bucks—a couple of gigolos.

Giles House chatter—
But surely you didn't tell him straight out that you loved him.
No, he had to squeeze it out of me.

V-12'ers—10 years later.
Say I remember you—we were messmates together.
Sure, you used to go out with the same messes that I did.

She was only a sailor's sweetheart, but now she's an officer's mess.

He: How are you this evening, honey?
She: All right, but lonely.
He: Good and lonely?
She: No, just lonely.
He: I'll be right over.



"But why buy a cow when milk is so cheap?"

Him: (with coldsore) May I kiss you?
Her: No, I don't want a scab on my lips.
Him: Don't call *me* a scab!

Jordan: Use the word "metaphor" in a sentence.
Typical Marine: Well—my girl necks.
Jordan: But you didn't use the word.
Typical Marine: Well, what the hell do you think I metaphor?

June night
Moon bright
Boy in love
Girl like dove
Hallucination
Osculation
Holy Moses
Halitosis

He: (disgustedly) I think I've got a flat tire.
She: Oh, gimmie a chance, we're not a block from home yet.

The girl I left behind me
I think of night and day
For if she ever found me
There'd sure be hell to pay

Chief Falcone to line getting shots: All those with names beginning with A to B, go to the first table; all those with names beginning with BA to BO, go to table two; all those with names beginning with BO. . . .
Voice from rear: Go to the washroom.

M. C.: Ladies and gentlemen, we are pleased to announce that we have on the stage this evening Betty Grable in person who will sing "I got it and you can get it."
Voice from the audience: Every man for himself.

She: (slamming door) Did I catch you unaware?
V-12er: That's O. K., lady, the Navy's paying for it.

Maisie says that the main trouble with a girdle is not the first cost, but the upcreep.

He: Jack's wife simply worships him.
Him: How's that?
He: She places burnt offerings before him every day.

First female: Why did you jump out of his car and start running last night?
Second babe: I was being chaste.

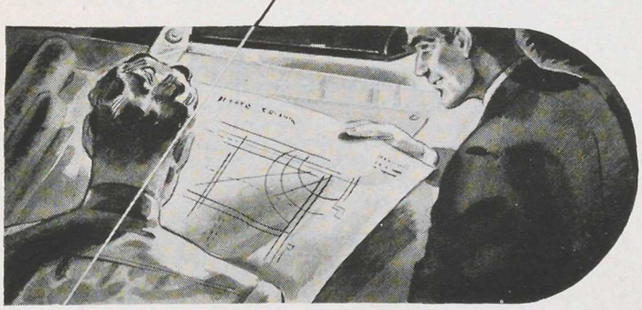
Barber: And how do you want your hair trimmed, Miss?
Miss: I want it cut like a boy's behind.

It's getting hard for a working girl to make a living these days with boys calling up and asking what nights she's free.

If it were not for dreams . . . for the fabric of imagination we call vision . . . nothing worthwhile could be accomplished.

Down through the years America's men of foresight have had the courage to strive and work toward the realization of their dreams. To them we owe our America of today.

From our colleges and universities are coming thousands of young men and women who have the vision and determination to carry on the tasks so well begun. These are our planners for an even better tomorrow — diligent, purposeful young people who mean to get somewhere and take America with them! Here is the backbone of progress — idealists, dreamers, designers — the planners who hold in their hands the destiny of our nation.



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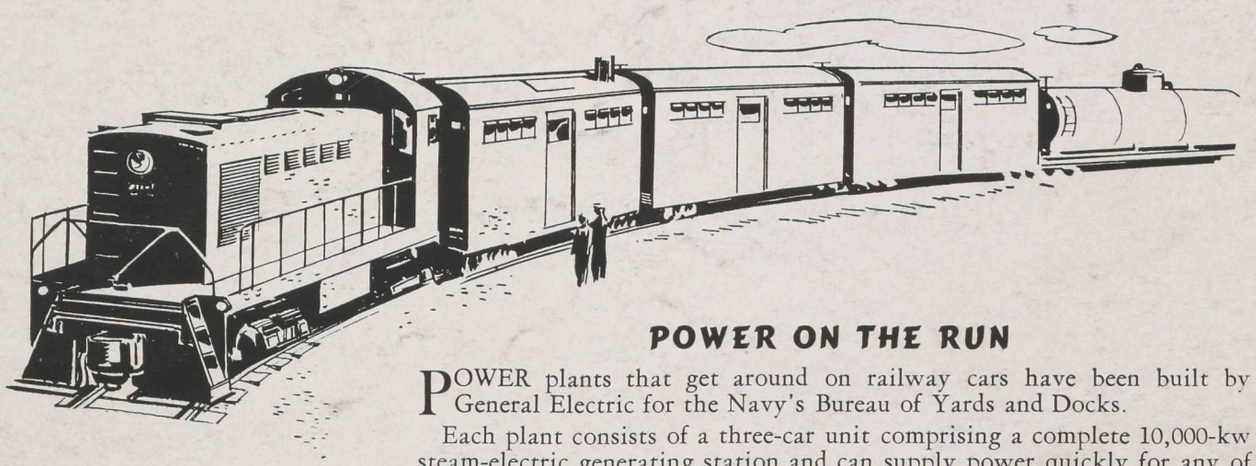

POWER ON THE RUN

POWER plants that get around on railway cars have been built by General Electric for the Navy's Bureau of Yards and Docks.

Each plant consists of a three-car unit comprising a complete 10,000-kw steam-electric generating station and can supply power quickly for any of the Bureau's many projects. Engineers estimate that these power plants can be "put on the line" within 24 hours after they are shunted on to a siding.

Although the units in themselves are unique, the apparatus involved is of the same type used in regular central station and industrial power plant installations throughout the country.

MACHINE OF MERCY

A HYBRID electric washer and water heater, devised by G-E workers, speeds and improves the Sister Kenny treatment of infantile paralysis. This treatment employs the application of hot damp packs to the patient to relieve pain and reduce muscular spasms, and the washer provides an improved way of heating and wringing the heavy woolen cloths used.

In the bottom of the tub, which does not have an agitator, is a Calrod immersion heating unit that can bring the water to a boiling point, permitting the use of the machine for contagious cases.

TEMP-TURB

A G-E engineer has ironed out the problem of temperature control and windshield defrosting in planes. His solution is an ingenious application of the bimetallic thermosensitive element used in automatic household irons.

This device, called the Temp-Turb, which regulates air temperatures for cabin warming and windshield defrosting, is now being installed in Havoc A-20 bombers.

The operation of the Temp-Turb requires no external source of power other than that obtained from the velocity of air flowing through it, on the windmill principle.

Hear the General Electric radio programs: "The G-E All-girl Orchestra" Sunday 10 p.m. EWT, NBC— "The World Today" news, every weekday 6:45 p.m. EWT, CBS.

GENERAL ELECTRIC

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192,000 employees of the General Electric Company are on their jobs producing war goods and buying over a million dollars of War Bonds every week to hasten victory.