

## Aids To Navigation School, Groton, Conn.



(Left to right) James Mead and Herman Maaks run tests on storage batteries in the battery shop.

# “WICKIE” SCHOOL



A group of senior petty officers gets the word on a major lens.

Twenty-one  
Weeks  
Of Grunts  
and  
Flashes



Here, we are in the primary light room. Much of the school's equipment is so interesting, that it is hard to keep your eye on the instructor.

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**A**N "Aids to Navigation School" located at the U.S. Coast Guard Training Station, Groton, Conn., was established 15 December, 1944 with the purpose or design of training enlisted personnel in an advanced course on the varied duties of Aids to Navigation. The school course lasts twenty-one weeks. This school is for petty officers preferably first class or chief petty officers who have a sincere desire for this type of duty and who are mature, reliable, and conscientious. Some knowledge or practical experience in electricity, gas engines, diesel engines, or general mechanical work is desirable. The school is complete in every respect, including old and more modern equipment now used in the service. Over 18,000 square feet of floor space has been remodeled to provide for aids to navigation equipment used in training. Two enginerooms including generators, compressors, batteries, air tanks, and fog signals have been installed. Engineroom No. 2 typifies the average lighthouse of today, and Engineroom No. 1 typifies the most modern up-to-date lighthouse. Major lighting equipment including fixed, revolving, flashing and range light equipment for both electrical and incandescent oil vapor light have been installed for lighthouse and lightship instructional purposes. A complete class A, B, and C radiobeacon and radiotelephone installation has been provided. The various units or any combination of units can be placed in operation in such a manner as to simulate actual field conditions. The object is to train men for key positions to go out into the service and train others in the operations and field servicing of aids to navigation apparatus.

The first week of school is spent learning "First Aid"; the practical application of splints, bandages, and emergency treatment of all injuries that might be encountered in isolated light stations or lightships. Resuscitation of the apparently drowned, treatment of burns, broken limbs, and symptoms of appendicitis, blood poisoning, frostbites and things of such nature are studied thoroughly. Practical knowledge of first aid is a prime requisite of a good lightkeeper.

The second week of school is spent reviewing mathematics and physics. Most of the students at this school have been away from fractions, decimals, long divisions, measurements, weights and measures, and common laws of physics for so long a time that the review is a necessity before going into the rest of the course. This does not mean that a man has to have a college or even a high school education to make the grade here, an eighth grade education or its equivalent combined with good practical common sense is sufficient.

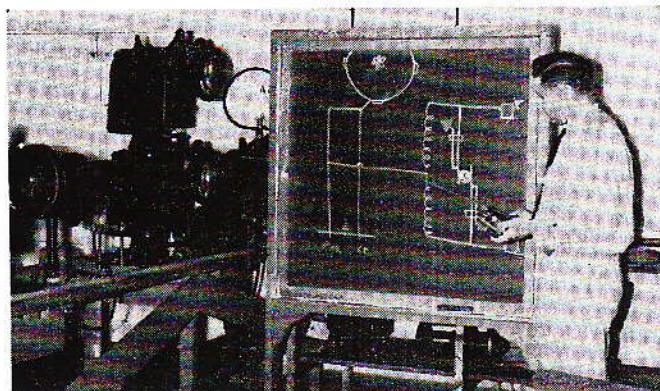
Many men who haven't seen a schoolhouse in twenty or twenty-five years and then only to the seventh or eighth grade have graduated from this school in the past with great credit to themselves.

The third and fourth week of the school is spent in learning the basic principles of signaling and piloting. Semaphore, blinker light, and International Code are taken up in detail. Chart work, compass courses, magnetic courses, true courses, relative bearings, light-list, tide tables, sunrise and sunset, and time zones are taken up and explained thoroughly. Then practical

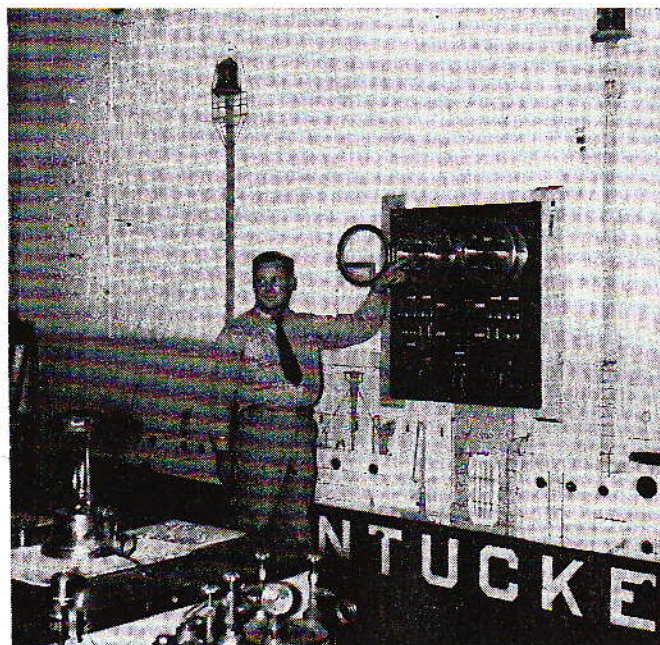
problems are worked out in such a manner to correspond to actual service conditions.

Many an old surfman with twenty summers in the service has come through the week of mathematics with a doleful look in his eye, then settled back in satisfaction as "The Rules of the Road" and International Code" are brought forth. The average former surfman has an easy time this two weeks. This part of the course is thought to be a necessity on account of the long trips in bad weather undertaken by small boats from the outlying light stations, and the fact that any operator should be able to signal to and from merchant ships, or at least be able to read the International Code flags and know the distress calls and emergency signals.

The fifth, sixth and seventh weeks are devoted to basic electricity. In here the mystery of Ohm's Law, simple series and parallel hook-ups are explained; electrical symbols and diagrams are studied; electrical motors and generators are demonstrated with emphasis placed on maintenance. The electrical course is not

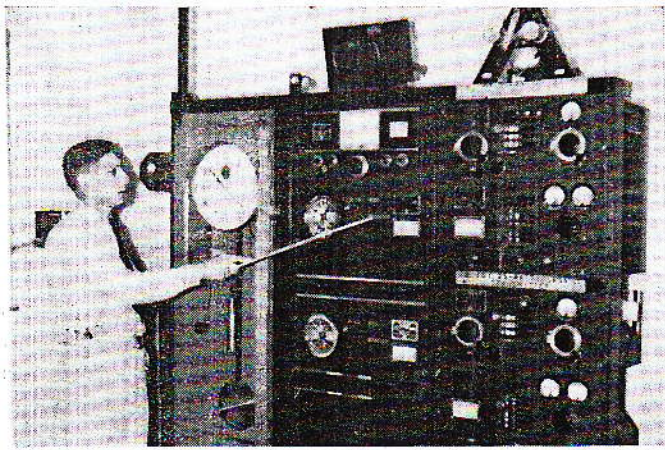


Here, in the minor aids (electric) room, ENC Eldridge Miller runs over a schematic drawing of a flasher mechanism. Railroad type range lights are at the left.



In the primary lights room BMC Louis Carter demonstrates a lightship's timing device. Note emergency hand lantern (oil vapor) at lower left.





ETC Luigi Visco goes over the control panel of a radio beacon. This type, using the pendulum clock, can only be used on shore units.

designed to make EMC's out of the students but to give them a working knowledge of the machinery which they operate. Fuses and brushes and their principles and use are taken up in practical work and in theory. Opens, shorts, and grounds are all explained and demonstrated with simplified test with continuity. A great deal of the time is spent in actual work on batteries.

The eighth, ninth and tenth week of the school is devoted to small tools, gasoline engines, and diesel engines. The overhauling of engines is not taken into consideration in this course. The maintenance and operation together with trouble-shooting in its varied angles is ground into each individual student so thoroughly and in such an emphatic manner that he should experience no trouble in getting the maximum life and output from each individual unit that he operates. The purpose of these three weeks is to avoid the necessity of needless trips to the station by the technicians and mechanics.

The eleventh and twelfth weeks of the school are spent in the battery operated light room where Wallace and Tiernan lanterns and Service manufactured lanterns sit side by side on benches around the room. Here the student installs motors, lamp changers, shades, relays, and the wiring of the various types in use. Here he learns about the proper shunts, bulbs, surge charts, sun-relays, electric bell strikers, practical duration problems are worked out for different battery racks and voltages. There is a great deal of practical work accomplished during this period.

The thirteenth and fourteenth weeks are devoted to minor lights acetylene operated. Here the student gets an intensified two weeks course in adjusting and setting acetylene flashers. He begins by studying accumulators, acetylene gas and its properties, and the safety precautions that must be used when handling and working with this gas. The student makes up piping for the various sizes of buoys and shore installations brazing the fittings onto the pipes and bending the completed shape to the desired shape. He replaces broken lantern panes and learns how to mend damaged ventilator sections of the lanterns. Types and sizes of burners, pilot lights, gas valves, drop tests, sun valves, and all the other things connected

with acetylene flashers are carefully explained. Duration problems involving different sizes burners and accumulators are worked out. The practical part of these two weeks constitute a valuable part of the course. CO2 bell strikers are included in these two weeks.

The next five weeks of the school deal entirely with lightstations, their upkeep, and their operation. This is the heart of the entire school course, and it is complete as far as time allotted allows. A great deal of thought and experience plus years of experimentation has made these five weeks a model unsurpassed as far as this type of instruction is concerned.

The fifteenth week of school is spent in the radio beacon room where the theory of radio beacon as used by the Coast Guard is taught. Switches, diagrams, keying relays, cam operation, radio telephone operation, and other things that tend to take the mystery out of the radio beacon are brought out and thoroughly aired to the satisfaction of every student. By the end of this week the student is at home in the radio beacon room and can throw the switches on the Class A, B or C radio beacon with a deft hand and a sure knowledge of what he is doing.

The sixteenth week is spent in the major light room. Here mercury floats, prisms, candle power, clock work, automatic lamp changers, alarm systems, orders of the various lens, focusing, bulb or lamp filaments, incandescent oil vapor lamps, lightships and their operations, lights characteristics, colored sectors, and wick lamps are all explained and demonstrated. This is an interesting week for most students because the major light room is superbly equipped with almost every type of lens, lamp changer, Incandescent Oil Vapor lamp, and methods of changing characteristics on major lights used by the Coast Guard. A person just walking through the room and examining the equipment and material there becomes interested.

The seventeenth week is spent in Engineerroom No. 1. Here the most modern of the service engineerroom is laid out. Diesel electric generator plants, electric driven air compressors, every type of diaphone fog horn used in Aids to Navigation work, diaphragm horns, reed horns, and sirens, switch panels and battery bank are laid out in such a manner as to invite inspection. Some fearful moans and groans come out of this week's training as the various students try their hand at adjusting and trouble shooting at each type of sound producing device. It is a trying week for the rest of the base.

The eighteenth week is spent in the radio beacon room again. This is probably the hardest week of the course. Here the student learns to synchronize the radio and fog signal, how to trouble shoot on his radio equipment for minor ailments, timers, interlocks, tubes, and fuses are checked and located.

In order to successfully complete this phase of light-house operation the student must prove himself to be a competent radiobeacon operator.

The nineteenth week of the course is interesting to most students. It deals with paper work, kohler plants, maintenance of station, E.S.D.C. controllers, Crosby pneumatic characteristics controllers, and engineerroom upkeep. The paperwork covers station logs, engine-

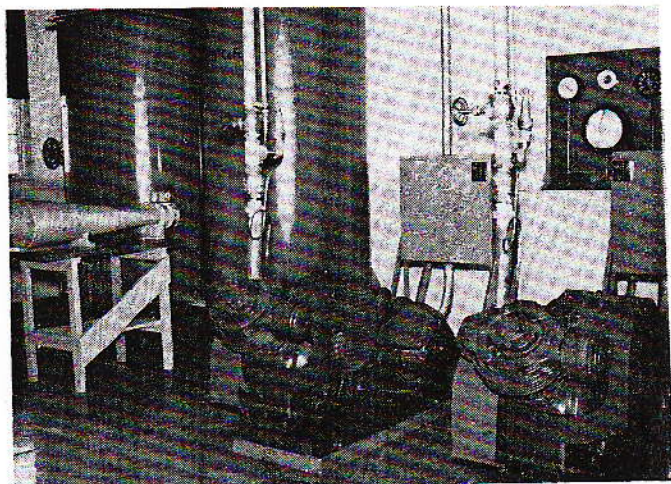


room logs, fog signal reports, record of public property, machinery reports, file systems, handling mail, invoices, requisitions, and stock catalogs. Vehicle reports, battery reports, and the like are also discussed and samples made out by each student. Regulations, pay and supply, personnel instructions are dealt with very lightly, just enough to enable the students to take care of amendments and to find instructions needed. To put it briefly, he is taught how to take care of the business of his station.

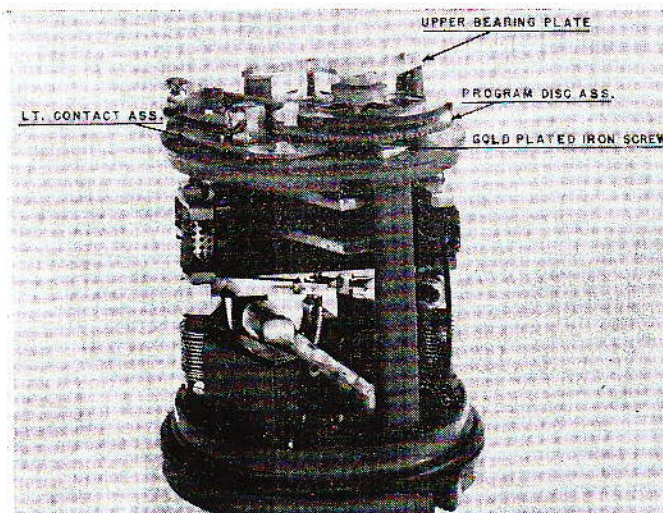
The twentieth and twenty-first weeks come under the heading of buoys and appendages. The charting and setting of small buoys is actually done by the students in the school's thirty-eight foot buoy boat. The buoy yard at the school is equipped with both electric and acetylene buoys. A hoisting boom and engine is provided so that students change lanterns, accumulators, battery, racks, lamp changers, motors, pilots, and burners, under actual service conditions. The lateral system of buoyage is explained and demonstrated. Trouble shooting on the various buoys both electric and acetylene has been developed into a science of its own right here. At the end of two weeks of this kind of duty and training the student is able to tell at a glance the size of a buoy, what it is equipped with and the size of most of its appendages. He familiarizes himself with each buoy so thoroughly that upon hearing the size he can picture it to himself and describe it accurately upon paper together with all its gear, what it should have on it and what the buoy box should contain in order to work on it properly. These last two weeks are invaluable to a man who happens to be transferred to a buoy tender.

Nowhere else in the world will an "Aids to Navigation School" so complete in equipment and in scope be found. This is attested to by the fact that engineering students from several foreign countries have attended. In fact the present officer in charge of all Aids to Navigation in "Columbia" recently took a six months course at this school.

Observers from other foreign countries have attended this school from time to time among them Can-



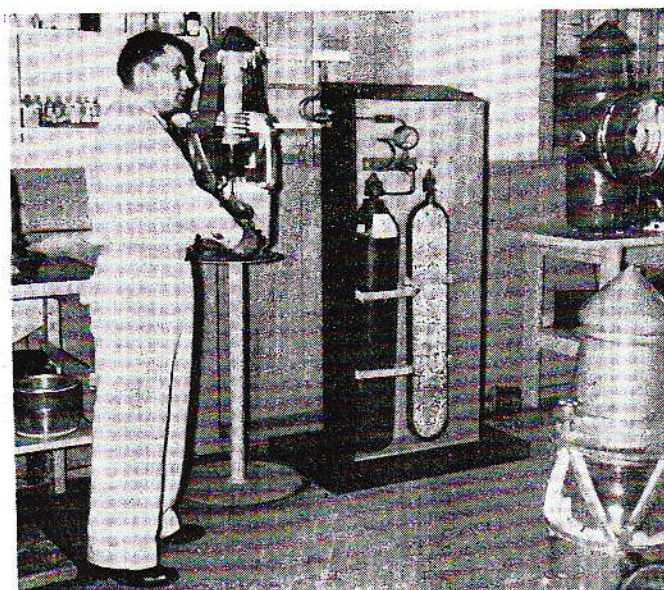
Here's a section of Engineerroom No. 1 showing two air compressors, two 125 cu. ft. receivers, and a panel board, in addition to the type CC diaphone at left (which can really pop your buttons).



This electric flasher mechanism looks complex, but the A to N instructors soon clear away the mystery.

ada, France, China and Egypt. A large number of buoy tender officers have attended this school in groups of fours and fives for a month at a time. Hundreds of copies of text material, written here at the school, have been furnished to the various Coast Guard Districts and tenders upon request for local and small group instructions.

The student's stay at the training station is pleasant. The Aids to Navigation school sponsors a bowling team, a softball team, and last year a boat crew that was only beaten once and that by the team from the Electric boat company of Groton, Conn. Pool tables, ping pong tables, shuffleboard sets, television sets, good chow, and adequate liberty make this a pleasant stay while attending school. The base here has a CPO club where all chiefs and first class petty officers are made welcome.



In the gas-operated minor light room ENC James Thompson points to a gas-operated flasher mechanism. A cut-away of an acetylene accumulator is at the center.