



WANTED: Marine Engineers

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THE MYTH

From time immemorial the title of Marine Engineer has occupied a unique position in the organizational structure of the Uniformed Force. Shrouded in mystery, beclouded in seeming paradoxes, this title has become the central character in many weird tales and exotic anecdotes. Indeed, the Marine Engineer has been regarded by some as a creature of the deep, gaining access to unsuspecting vessels via the hawse pipe or sea suction or dismissed by others as a figment of the imagination.

Land-locked firehouse lawyers, holding court from their ivory (hose) towers, have postulated many theories regarding the origin of the species—Marine Engineer. Without a doubt this matter has been the subject of more than one thesis submitted in pursuit of a doctorate in abnormal psychology. It would not be surprising, therefore, if reference to any standard text on anthropology were to read as follows:

MARINE ENGINEER: Genus *homo sapiens*, "*Architectus Maritimus*", a biped, possessing a circulatory system consisting of a 2-stage turbine-driven centrifugal pump and a circulating fluid chemically equivalent to SAE-30 W, HD lube oil. This biped is indigenous to the labyrinthine precincts of engine room spaces but has been observed on rare occasions above deck in daylight hours whenever the planet earth is in juxtaposition with the lunar orbit.

Size and physical characteristics of this species may vary widely depending on native habitat and geographical distribution. In the North Temperate Zone the most common specie found is rated at 1000 H.P. at 1800 RPM. Marine Engineers, although herbivorous by nature subsisting principally on sea weed and plankton, have been known on rare occasions, under the stress of prolonged fire operations, to devour Marine Oilers, Wipers, and 1st Grade Fireman. (This practice, however is frowned upon by Local 333, National Marine Union, Local 94, Uniformed Fireman's Association, and the Budget Director.) The species is rapidly dwindling in number and unless vigorous conservation measures are initiated the "*Architectus Maritimus*" may well become extinct (See also *Dinosaurius* and *Dodo Bird*).

THE FACTS

1. Only Members of the Uniformed Force are eligible to participate in competitive Civil Service promotional examinations for Marine Engineers (Uniformed).

2. Such candidates must, at the time of the examination, possess a valid U.S. Coast Guard license for Chief Marine Engineer, Steam Vessels, at least 1000 H.P., or Chief Marine Engineer, New York City Fireboats, at least 1000 H.P.

Generally, candidates for this license have obtained the minimum required four years engineroom experience while serving in The U.S. Navy, U.S. Coast Guard, or Merchant Marine, prior to their entrance into the Fire Department; or while on military leave during World War II and/or the Korean Conflict.

Approximately 15% of the candidates for this title have been graduated from State and Federal Merchant Marine Academies. It is to be noted that procurement of qualified and eligible licensed Marine Engineer personnel is dependant entirely upon sources outside the Fire Department and upon factors and conditions over which it exercises no control.

The sources described above continued to serve the needs of the Fire Department Marine Division until September, 1961. The irony inherent in such a procedure is pointed up in the following facts:

1. Firemen assigned to Marine Companies cannot be assigned or detailed exclusively to engineering duties since their job description and classification defines their duties as firefighting and such other duties, including fire prevention inspectional activities, directly related thereto. These Members are unable to satisfy the four year engineering experience factor required by the U.S. Coast Guard Marine Inspection Service.

Thus interested Firemen are precluded from pursuing this promotional path.

2. Civilian Stokers (Wipers) are assigned to acceptable engineering duties and do accumulate creditable time toward establishing U.S. Coast Guard eligibility, and indeed, many of these Stokers possessed the required license. However, they too were barred from this promotional exam-

ination because they were not Members of the Uniformed Force.

On June 16, 1961 the Marine Administration Division undertook an extensive survey and study in order to ascertain the self-sustaining capability of the Uniformed Force to provide qualified marine engineering personnel to meet the existing and future needs of the fire service.

It was apparent that, due to the existing and continuing high rate of attrition, a critical shortage of licensed personnel would rapidly develop. It was also evident that due to the competing demands of industry, the normal influx of such personnel via entrance examinations for Firemen would be sharply curtailed. The situation could be expected to deteriorate further because of the anticipated reduction in the work week, acquisition of new fireboats, and the necessity for increased quotas to conform to prescribed manning schedules established in consonance with commercial practice existing in the Maritime Industry.

The matter was taken under study by the Department of Personnel in consultation with the U.F.A. and Local 333, National Maritime Union. The Marine Administration Division expressed the strong conviction that this rank must remain within the structure of the Uniformed Force in order to maintain the necessary control, efficiency and discipline demanded of the fire service.

A course of action was unanimously agreed upon as the most logical and satisfactory solution to a complex problem and embodied the following recommendations:

1. Integrate the Civilian Wipers into the Uniformed Force, thus enabling them to establish eligibility for promotion to Marine Engineer.

2. Conduct a competitive civil service examination for a new title of Uniformed Wiper, open to eligible Firemen in the Uniformed Force in order to establish a position, the duties of which specifically satisfy the basic U.S. Coast Guard requirements for the license of Marine Engineer.

Fire Commissioner Thompson immediately recognized the merits inherent in the proposed action and was instrumental in accomplishing recommendations, despite the many legal and administrative problems involved. On March 26, 1963, Civilian Wipers were integrated into the Uniformed Force and thus became eligible for promotion to the rank of Marine Engineer. Seven of these members have been provisionally promoted to the rank of Marine Engineer pending promulgation of the eligible list for that title. These Members are not eligible for promotion or reclassification to other titles (Lieutenant, etc.) in the Fire Department.

On April 30, 1964, the first competitive examination for the new rank of Marine Wiper (Uniformed) was conducted. Limited to Firemen in the Uniformed Force, this rank constitutes the principal source of all future

Marine Engineers in this Department. These men, however, are not excluded from promotional opportunities to other ranks (Lieutenant, etc.) in the Fire Department.

Fire Commissioner Thompson recognized the imperative need to provide an opportunity for the Members who were potential Marine Engineers to acquire the necessary technical and theoretical knowledge in preparation for U.S. Coast Guard examinations. Battalion Chief Quevedo, Marine Administration Division, possessed of wide experience in a similar program he conducted as a Commander in the U.S. Navy, was assigned the task of drawing up an educational program. He was directed to explore the possibility of establishing, within the framework of the existing technical high school system, an In-Service Training Program For Prospective Marine Engineers.

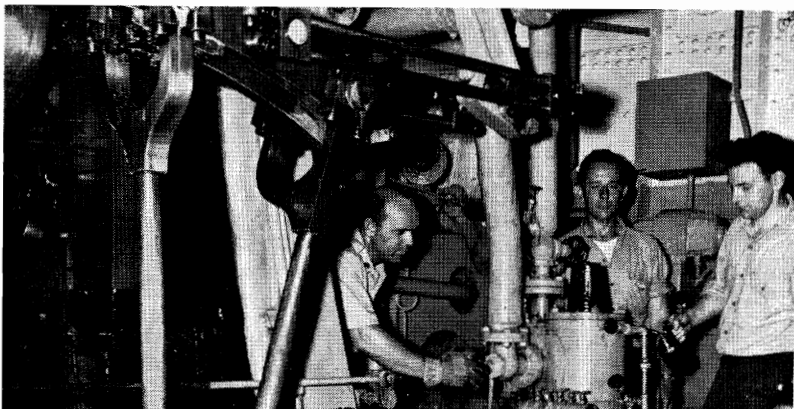
A comprehensive survey of all the various types of propulsion and auxiliary machinery and the related electrical, mechanical, hydraulic, and pneumatic control systems employed on the several types and classes of vessels in service indicated the need for a course of instruction embracing broad and comprehensive treatment, both theoretical and practical, in the areas of Thermodynamics, Diesel Engineering and Electrical Technology. On the basis of this information a proposed curriculum was developed and submitted to the Board of Education.

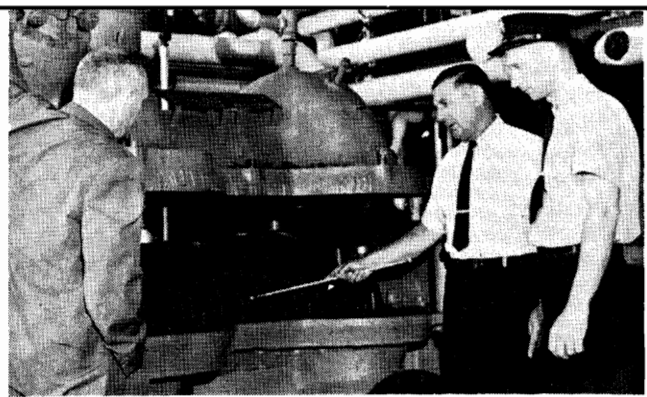
Mr. William D. Kraengel, Coordinator, Evening Vocational Division and his assistant, Mr. John Nowak agreed in principle with the scope and sequence of the proposed curriculum. Mr. Nowak visited each of the various types of vessels in the fleet and made a detailed and exhaustive study of the engineering plants while underway under actual operating conditions. Endless hours were spent in consultation with the engineers on duty which enabled Mr. Nowak to develop a keen insight into the problem. Thus he was able to offer invaluable assistance and guidance in modifying the program so as to insure conformity with the existing policies and directives of the Board of Education.

Battalion Chief Quevedo and eight Marine Engineers from the various Marine Companies in the Marine Division were selected to attend a five week course of instruction in Teaching Methodology conducted by the Board of Education. On completion of the course the group was duly licensed as Instructors in Marine Engineering in the Evening Vocational High School. Approval thereafter was granted to commence the first course of instruction at Brooklyn Technical High School, on January 10, 1964. This class was composed of seventy members of the Uniformed Force assigned to Marine Companies. These men were individually selected on the basis of their background experience, previous education, demonstrated or observed ability, aptitude, and interest in Marine Engineering.

As the response of Members from Marine Companies for admission to this first class far exceeded expectations, and

Below left: Fr. Henry J. McArdle, Mar. Co. 5, receives Certificate of Merit and Congratulations from former Comm. Thompson. Certificate was presented to Fr. McArdle for attaining the highest final mark in the Diesel Engineering Course. Present at ceremonies were (l. to r.) John Gannon, Pers. Repr. to Local 333, National Maritime Union; John Nowak, Bd. of Educ.; Batt. Chief John J. Quevedo; and Dep. Ass't. Chief John J. Cunningham (l). *Below right:* Fr. Nesse, Matejick, and Beaghen (l. to r.) attend to duties on Field Project aboard Fireboat Mitchel. Field Projects require all students to operate main and auxiliary machinery under actual service conditions.





Some of the excellent displays which are available to students at the United States Merchant Marine Academy at Kings Point, New York are shown here. Above left is an exact replica of the Control Console of the Nuclear powered ship, *U.S.S. Savannah*. Above right shows Battalion Chief John Quevedo, with students examining a turbine rotor during a field trip in the Thermodynamics Laboratory.

considerable interest was generated among members assigned to land units, the Fire Commissioner directed on Department Order 9, 1964 that this opportunity be extended to include any member of the Uniformed Force who possessed the requisite qualifications. Accordingly, on February 20, 1964, seventy additional Members from various Land and Marine Companies commenced the second course of instruction.

The "In-Service Training Program for Prospective Marine Engineers" is unique in the following respects:

1. Separate curricula have been developed to meet the specific and highly specialized needs of the fire service. Standard U.S. Navy course in Thermodynamics, Diesel Engineering and Electrical Technology have been incorporated to insure broad comprehensive knowledge in basic fundamentals of science and related mathematics.

2. A series of twenty-eight related U.S. Navy Training Films on 16mm sound motion picture and color slides associated with each course and lesson are utilized to increase the effectiveness of classroom instruction. Texts, charts, cutaway sections, working models and audio-visual aids have been made available for instructional purposes by the Chief of Naval Training Aids Section, Washington, D.C. and the Department of Marine Engineering, U.S. Merchant Marine Academy, Kings Point, N. Y. For this invaluable assistance we are particularly indebted to Mr. Martin F. Burke, Director of U.S. Navy Training Aids Section, Federal Office Building, 29th Street and 3rd Avenue, Brooklyn, N. Y.

3. Field trips to the various types and classes of vessels in service are scheduled in which individual students are required to operate all propulsion and auxiliary equipment under actual service conditions.

4. Sea projects as developed by the U.S. Merchant Marine Academy are arranged in which students are required to visit each vessel and obtain data and specifications on all propulsion machinery, auxiliary equipment and controls; draw schematic diagrams of fresh water, fuel oil, lubricating oil, pneumatic, hydraulic storage and distribution systems. In addition students are required to solve typical problems encountered under operating conditions.

5. Regularly scheduled written examinations are conducted in all phases of subject matter related to the several courses.

6. Emphasis is directed to those areas of technical and theoretical instruction specifically included in the U.S. Coast Guard examinations.

7. Each student receives free of charge a complete seven volume set of "Practical Marine Engineering", published by the Marine Engineers Benevolent Association through the courtesy of Mr. Raymond T. McKay, president.

8. Students attend classes four hours per week on their OFF-TOURS. Parallel sessions are scheduled to accommodate Members performing duty under the two platoon,

25 Group Working Chart.

9. The entire course as presently constituted consists of three standard school semesters. Certificates are issued by the Board of Education upon successful completion of each area of instruction.

10. The curriculum is presently being evaluated by the U.S. Coast Guard for the purpose of assigning it a relative or equivalent weight in substitution for creditable experience required for eligibility to compete in the regular licensing examination for Marine Engineer.

11. Instructors are paid at the prevailing rate existing in the Board of Education Vocational and Technical High School Division.

12. The program is supported from appropriated Federal funds.

The response of Members who have availed themselves of this opportunity to develop the necessary skills and to acquire a broad technical knowledge of subjects related to Marine Engineering has been most gratifying. The interest manifested by individual members has had a salutary effect on morals and efficiency, and is manifested in the presently existing high standards of material and operational readiness of all vessels.

It should be particularly emphasized that this program is not limited to Members aspiring to the Rank of Marine Engineer. All Members of the Uniformed Force are invited to participate in this opportunity to increase their knowledge of a wide variety of engineering subjects which may prove invaluable in fire operations. On June 16, 1964 forty one (41) Members completed the course in Marine Diesel Engineering and thirty seven (37) Members completed the course in Electrical Technology.

FUTURE PLANS

1. The fall, 1964 semester will be extended to include special courses in Mathematics as well as an accelerated U.S. Coast Guard License Preparatory Course.

2. Each subject will require attendance at only one session per week. Students desiring to carry a heavier work load may enroll in two courses.

3. Additional instructors will be provided from the Department of Marine Engineering of the U.S. Merchant Marine Academy.

4. Field trips and special sessions are scheduled to be held in the Diesel Electrical and Thermodynamics Laboratories of the U.S. Merchant Marine Academy.

5. Special sessions in Thermodynamics are scheduled aboard the S.S. Brown, including operation of reciprocating marine steam engines, turbines, pumps, compressors and related auxiliaries and controls.

Registration for the fall semester will commence on or about Sept. 1, 1964. Full particulars relating thereto will be promulgated in Department Orders.