

NATIONAL ACADEMY OF SCIENCES

WILLIAM FRANCIS GIBBS

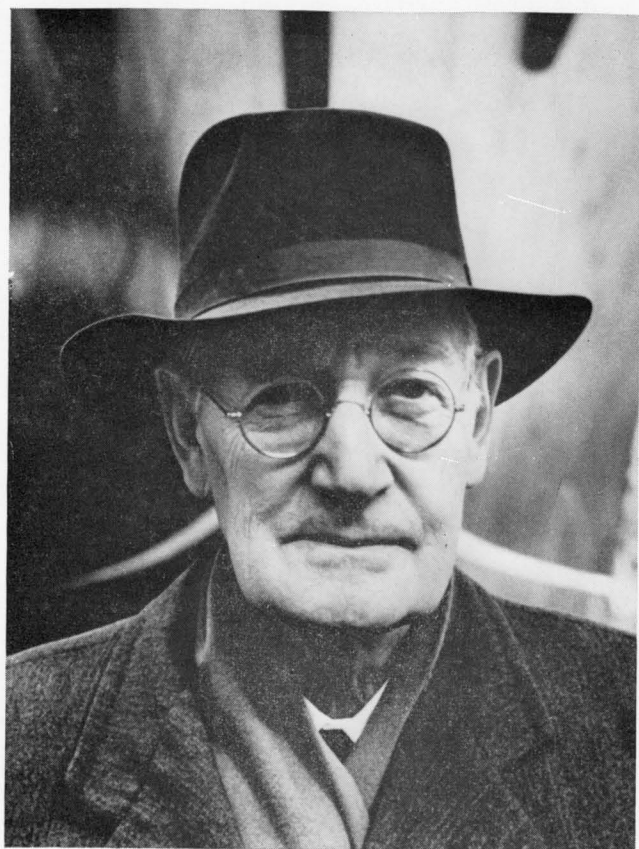
1886—1967

A Biographical Memoir by
WALTER C. BACHMAN

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Biographical Memoir

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William Francis Gibbs

WILLIAM FRANCIS GIBBS

August 24, 1886–September 6, 1967

BY WALTER C. BACHMAN

FEW MEN HAVE SO WHOLEHEARTEDLY dedicated a lifetime to a single objective or derived so much enjoyment from the great effort devoted to achieving their goals as William Francis Gibbs.

Born August 24, 1886, in Philadelphia, Pennsylvania, son of a successful financier, William Warren Gibbs, and of Frances Ayres (Johnson) Gibbs, he received his primary and secondary education in the DeLancey School there, graduating in 1905.

An early interest in ships was undoubtedly stimulated when, as a boy, he had the opportunity to witness a ship launching at the Cramp shipyard in Philadelphia. This interest was confirmed and strengthened by a number of transatlantic crossings he made with his younger brother, Frederic, starting in 1901 with a trip on the White Star Liner *Oceanic*, the largest transatlantic passenger ship at that time. Later crossings were made on the *Celtic* and the *Lusitania*, outstanding ships of their day, and in 1907 on the maiden voyage of the *Mauretania*, which held the transatlantic speed record for over twenty years.

In 1906 he entered Harvard, where with characteristic individualism he did not pursue a formal curriculum leading to a degree but selected a combination of courses, largely scientific, in his range of interest. His leisure was devoted to reading technical publications dealing with ship design and con-

struction. During this period he made an extensive study of all available information on the newest warships of the British Navy, which was preeminent at that time.

His studies at Harvard were completed in 1910. Even though no degree was conferred, the Harvard Chapter of Phi Beta Kappa made him an honorary member in 1945.

On the advice of his father, who considered engineers poor businessmen, he entered the Columbia University Law School in 1911 and received a Bachelor of Law degree in 1913. At the same time, he did graduate work in economics for which he received the degree of Master of Arts, also in 1913.

During this period his father suffered financial reverses and William Francis took a position in the law office of William Osgood Morgan in New York. His vision of great ships remained, however. For the next two years, while working at law in New York during the week, he journeyed each weekend to the family home in Haverford, Pennsylvania. There he spent all of his spare time together with his brother, Frederic Herbert Gibbs, investigating the possibility of designing a high-speed transatlantic passenger liner, 1,000 feet long. By May 1915, he was so encouraged by the results of this study that he gave up all other work so that he could devote full time to this project.

By January 1916, their design had progressed sufficiently so that the brothers presented it to Admiral David W. Taylor, then Chief Constructor of the U.S. Navy, and to the Hon. Josephus Daniels, Secretary of the Navy.

Encouraged by these men, they continued their efforts and, in June 1916, presented their design to Mr. P. A. S. Franklin, President of the International Mercantile Marine Company. Their proposal at this time included the development of a new port at Montauk, Long Island, with fast boat trains running to New York in order to reduce the total travel time to a minimum.

Mr. Franklin introduced the Gibbs brothers to Mr. J. P. Morgan, who was so impressed that he undertook the financing of further development of the design, including the necessary model testing.

Work on this project was interrupted by the entry of the United States into World War I in April 1917. W. F. Gibbs was appointed Assistant to the Chairman of the Shipping Control Committee of the General Staff of the U.S. Army and after the war was Assistant to the Chairman, U.S. Shipping Board on the American Commission to Negotiate Peace, in which capacity he attended the Peace Conference at Versailles.

In 1919 he was appointed Chief of Construction of the International Mercantile Marine Company, for whom he planned and supervised the conversion of the S.S. *Minnekahda* from a wartime transport to a third-class passenger and cargo ship for the New York to Hamburg service.

The great new German passenger liner *Vaterland*, which had made her maiden voyage to New York in May 1914, had been trapped there by the opening of World War I and had been seized by the United States government for use as a troop ship in 1917, when it was renamed the *Leviathan*. At the end of the war, the United States Shipping Board decided to convert the *Leviathan* for passenger service and the Gibbs brothers were asked to organize an independent firm to supervise this work.

Accordingly, in February 1922, Gibbs Brothers, Inc. was organized, with William Francis Gibbs as president.

The *Leviathan* had been built by the German shipyard Blohm & Voss, which held the detailed plans needed for the conversion and maintenance of the ship. The shipyard demanded one million dollars for a set of these plans—an exorbitant price at that time. Never one to submit to pressure, Gibbs immediately assembled a team of experienced men who completely measured the ship, including the internals of the main

machinery, and drew their own plans at a considerable saving of money.

The ship was converted for luxury passenger service by the Newport News Shipbuilding & Dry Dock Company, under Gibbs's supervision, with the care and attention to detail for which he soon became famous. The maiden voyage, which began on July 4, 1923, and several voyages thereafter were made under the supervision of Gibbs Brothers, Inc., acting as operating agents for the Shipping Board. With the successful completion of this great project, the reputation of the new firm was established.

Other commissions followed and the firm supervised the conversion of a number of ships released from their wartime service to suit commercial requirements.

The next great opportunity came in 1924 when Gibbs Brothers, Inc. designed and supervised the construction of the *S. S. Malolo* for the American-Hawaiian Steamship Company, a subsidiary of the Matson Navigation Company. This ship was built by William Cramp & Son in Philadelphia, the shipyard where William Francis witnessed his first launching as a boy.

The *Malolo* was the largest and fastest passenger liner built in the United States up to that time. Its design embodied a number of advanced safety features, including an improved arrangement of watertight compartments, connected, where necessary, through hydraulically operated sliding doors controlled from the bridge.

Few ship designers have had their ideas so promptly and dramatically tested. During the trial trip, a Norwegian freighter, the *Jacob Christensen*, struck the *Malolo* almost amidships while she was in a dense fog off Nantucket. Similar damage had previously caused the sinking of several passenger ships, most notably the *Empress of Ireland*, with great loss of life. The *Malolo* was disabled but was towed back to port with no injury to anyone on board. Gibbs's safety features were

widely acclaimed and his reputation as a designer was confirmed, as was his resolve to maintain only the very highest standards of safety at all times.

Other work followed and, in 1929, the firm of Gibbs Brothers, Inc. was succeeded by Gibbs & Cox, Inc., a new firm organized to include Daniel H. Cox, an outstanding yacht designer of that period. This association permitted the Gibbs talent to be applied to several outstanding yachts, including the *Savarona*, the largest steam yacht ever built and the first to include the highest safety standards for merchant ships; and the great sailing yacht, *Sea Cloud*, 316 feet over-all length, with the number and arrangement of sails of a full-rigged ship.

Although this was a lean period for shipbuilders and designers in America, other important projects handled by the Gibbs firm included the design and supervision of construction of the four popular Grace Line passenger ships of the *Santa Rosa* Class and the S. S. *Angelina* and *Manuela* for A. H. Bull & Company. The latter two ships were the first general cargo vessels built in the United States in almost a decade and were considered a great advance in many respects in both hull and machinery.

The Grace Line ships were significant in another way, in that their machinery included solid rotor impulse turbines, steam conditions high for that day, and other features which provided the foundation for the major advances which Gibbs later made in the machinery used in the U.S. Navy.

Gibbs's outstanding knowledge of passenger ships was then devoted to the design and supervision of the construction of the S. S. *America*. This was the largest merchant ship built in this country up to that time and had safety features, including fire resistant construction, to a degree unequaled by any other passenger ship of the period. Completed in 1940 by the Newport News Shipbuilding & Dry Dock Company, she could not be used by the United States Lines in her intended service because of

the war in Europe. After a luxury cruise to California, she returned to Newport News where her luxurious furnishings were removed and she was reoutfitted as the troop transport U.S.S. *West Point*. Refurbished at the end of World War II, she became a popular ship in the transatlantic service for which she was designed.

In 1933 the United States Navy, which had built almost no new ships since World War I, started a new construction program. Three shipyards, United Dry Docks, Inc, Federal Shipbuilding & Dry Dock Company, and the Bath Iron Works Corporation, undertook to build destroyers to a single design developed by W. F. Gibbs.

This program was particularly significant in two ways. It represented the first step in the development of modern, rugged, and more efficient steam propulsion machinery for naval ships. This type of machinery, further developed through a series of destroyer types, also of Gibbs design, was used to power practically all steam-driven combatant ships in the U.S. Navy built during World War II, including destroyers, cruisers, battleships, and aircraft carriers.

The work which was done on this first destroyer class, known as the U.S.S. *Mahan* or DD364 Class, also permitted the Gibbs firm to develop the methods and the central design and purchasing organization which made possible the large-scale shipbuilding programs of World War II.

This first new destroyer design was followed by many others. The destroyer classes known as DD381, 394, 397, 409, 423, 429, 432, and 437, all developed by Gibbs & Cox, Inc., permitted a steady evolution and refinement which resulted in the highly efficient designs known as the DD445, 453, and 692 Classes, which were the backbone of the World War II fleet.

In the DD381 and 394 Classes, Gibbs raised the steam pressure to 600 PSIG. This was considered a radical step at that time. Although it had the support of many farsighted naval

officers, it also aroused the fears and opposition of many others. The "Battle of High Pressure-High Temperature Steam" raged for several years until the new ships demonstrated by their performance in service that they were not only more efficient but also more reliable than their predecessors.

During this period the firm also developed the working plans for light cruisers, Army transports, and the very successful *Wind* Class of icebreakers. The last-named, with diesel electric propulsion, bow propellers, and rolling tanks, were then the most powerful and effective in the world. Seven ships of the *Wind* Class were built. All are still in service.

In 1940 the British government sent a purchasing mission to survey the busy American shipyards and order some cargo ships. The head of the mission approached W. F. Gibbs and said that his government wanted twenty ships. The reply was, "You don't need them." Gibbs then explained that if Britain was within twenty ships of winning the war she had won already. If not, she needed many more ships. The British then placed an order for sixty *Ocean* Class ships to be built in two new shipyards. From these ships was evolved the design of the great fleet of Liberty ships which carried so much of our military cargo during the war years.

The first ship of the British *Ocean* Class fleet was finished ten months and a day after the design was begun, a startling achievement.

The Gibbs brothers' experience with the U.S. Shipping Control Committee during World War I had shown very clearly the confusion and delays which could result if each shipbuilder and equipment manufacturer was permitted to proceed in his own way. With the design and purchasing organization developed for his naval work, W. F. Gibbs was in a position to develop designs suitable for mass production and to insist on the degree of standardization of equipment produced by suppliers to make the large wartime shipbuilding programs possible.

Knowing this background, the United States Maritime Commission requested Gibbs & Cox, Inc. to prepare the working plans and do the procurement for the first 312 Liberty ships. The first of these ships went on trial on December 26, 1941, soon after Pearl Harbor, and only nine months after the design was started. A total of 2,628 ships was built to this design in many shipyards before this program was ended.

As the United States mobilized for the war effort, the War Production Board was established and Charles E. Wilson, Vice Chairman for Production, requested W. F. Gibbs to become Controller of Shipbuilding to coordinate the ship construction programs of the Navy, the Army, and the Maritime Commission. This appointment was made with an arrangement which permitted Gibbs to control United States shipbuilding policies while at the same time he was freed of administrative detail so that he could continue to supervise the very important activities of his own company.

During this period he served as Chairman of the Combined Shipbuilding Committee (Standardization of Design) of the Combined Chiefs of Staff. He was also Special Assistant to the Director, Office of War Mobilization, and representative of the Office of War Mobilization on the Procurement Review Board of the Navy.

The technical organization developed for the prewar naval programs was rapidly expanded and under Gibbs's direction his firm produced the designs or working plans for over 63 percent of all ocean-going merchant ships and 74 percent of all naval vessels built in this country during the war years.

These wartime designs included the following:

- BDE Class Escort Vessels, 1941 (97 ships)
- DE(DET) Class Escort Vessels, 1942 (72 ships)
- LST1-490 Class Landing Ship Tank, 1942 (441 ships)
- LSD1 Class Landing Ship Dock, 1942 (15 ships)

GR121—U.S.S. *Mackinaw*—Icebreaker, 1942 (1 ship)
 AOG1 Class Navy Gasoline Tankers, 1942 (11 ships)
 DE(FMR) Class Escort Vessels, 1942 (85 ships)
 DE(WGT) Class Escort Vessels, 1943 (81 ships)
 DD692 Class Destroyers, 1943 (175 ships)
 DE(TEP) Class Picket Ships, 1943 (7 ships)
 CVE105 Class Aircraft Carrier Escorts, 1943 (19 ships)
 LST542 Class Landing Ship Tank, 1943 (611 ships)
 AGP4 Class Motor Torpedo Boat Tenders, 1943 (2 ships)
 ARB1 Class Battle Damage Repair Ships, 1943 (3 ships)
 LSM Class Landing Ships, 1943 (554 ships)
 AS22—U.S.S. *Euryale*—Submarine Tender, 1943 (1 ship)
 YMS135 Class Motor Minesweepers, 1943 (347 ships)
 ARS(T)1 Class Tenders for Salvage Craft, 1943 (3 ships)
 ARL1 Class Landing Craft Repair Vessels, 1943 (3 ships)
 APB45 Class Auxiliary Barrack Ship, Self Propelled, 1944 (4 ships)
 ARV(E) and (A) Class Aircraft Repair Vessels, 1944 (4 ships)
 LSD22—U.S.S. *Fort Marion*—Landing Ship Dock, 1944 (1 ship)
 CL119 Class Light Cruisers, 1944 (3 ships)
 LSM Class Rocket Ships, 1944 (60 ships)
 AG88 Class Ice Breakers, 1944 (2 ships)
 AD26 Class Destroyer Tenders, 1944 (7 ships)
 LST1153 Class Landing Ship Tank, 1944 (2 ships)

At the same time, the firm continued design services and procured much of the equipment for the multiple destroyer building programs based on the following designs for which working plans were started before our entry into the war:

DD445 Class	175 ships built in 11 shipyards
DD453 Class	48 ships built in 7 shipyards
DD692 Class	175 ships built in 8 shipyards

The key position occupied by the Gibbs organization in large government shipbuilding programs naturally invited several investigations by congressional committees. These committees, sometimes hostile at the outset, invariably ended with praise for the firm's contribution to the national effort. At the end of one such investigation, Gibbs remarked: "Nothing

educates a man like being forced to look up the answer to every possible question that can be asked about his business." The care with which he replied to every question raised by the investigators undoubtedly was an important factor in the outcome of these hearings.

The dream of William Francis and Frederic H. Gibbs had been to see a great ocean liner built to their design. Early in their careers this goal had seemed close but it receded during World War I and again when the government decided to recondition the *Leviathan*. The *America*, which was completed just prior to our entry into World War II, was the largest passenger vessel built in the United States up to that time and a fine and popular ship but not a true competitor with the fast superliners, the *Queen Mary*, *Normandie*, and *Queen Elizabeth*.

At the end of World War II, preliminary studies for a new ocean liner were begun and in 1946 the United States Lines Company commissioned Gibbs & Cox, Inc. to develop contract plans and specifications for the S.S. *United States*.

This superb ship resulted from the synthesis of all the experience gained from passenger ships such as the *Leviathan*, the *Malolo*, the Grace Liners, and the *America* combined with the technical advances made in machinery, structure, materials, and methods developed in work for the U.S. Navy.

The dream of W. F. Gibbs evolved into a practicable concept which developed into an extraordinarily coherent design. His drive and organizing ability enabled him to delve into and guide every detail of the design and construction of this ship, while at the same time he refuted the proposals of those who would have settled for less.

The concept of the ship was simple but difficult to achieve. It had to be the safest ship afloat, with standards of subdivision and fire resistance exceeding those of any other ship. It was to compete with the *Queen Mary* and the *Queen Elizabeth* in luxury, accommodations, and speed, yet be much more economical to operate. At the same time, it was designed to be

readily convertible to a troop ship, for which purpose its speed and safety features made it extraordinarily suitable.

That the combination of these many qualities in a single ship was actually accomplished has been amply demonstrated by the remarkable record of performance of the ship over the many years it has been in service.

In April 1949 a contract for construction was awarded to the Newport News Shipbuilding & Dry Dock Company. For a brief time during the building period, the ship was taken over by the U.S. Navy for conversion to a troop ship because of the Korean War. But the construction as a passenger ship was never interrupted; the crisis passed; and the ship was completed on schedule.

On July 3, 1952, the S.S. *United States* sailed from New York on its maiden voyage, with Mr. and Mrs. W. F. Gibbs on board. No previous announcement had been made but the passengers soon realized that it was to be an extraordinary voyage. The ship passed Bishop Rock 3 days, 10 hours, and 40 minutes after leaving Ambrose Light, having made the eastbound passage at an average speed of 35.59 knots. This was almost four knots faster than the previous record of 31.60 knots established by the *Queen Mary* and brought the Blue Riband trophy to the United States for the first time. Another record of 34.51 knots was made on the westbound passage. It was the first time in a hundred years that this country had had the premier ship on the Atlantic.

The ship made triumphal entries into Le Havre and Southampton and was enthusiastically received in both ports. William Francis Gibbs received wide acclaim and many awards for his achievement. But the published comment that he most appreciated was a succinct statement in the charivari column of the British magazine *Punch*: "After the loud and fantastic claims made in advance for the liner *United States* it comes as something of a disappointment to find them all true."

By more than just speed, this ship symbolizes the quality

of the design, engineering, and attention to detail that characterizes all of the work done by William Francis Gibbs. Its record for reliability, economy, comfort, and popularity with the traveling public is eloquent testimony to the success of the design.

It was widely reported at the time that the ship had not used nearly its full power during this record-breaking voyage. The secrets of the ship's capabilities were so closely guarded under W. F. Gibbs's ever-watchful eye that very few people, even today, know her maximum power and speed or even what she did on trial.

Soon after the close of World War II, the U.S. Navy recognized that the greatest threat to its supremacy on the seas lay in possible enemy submarine attack. It also realized that its technological advantages had become so well known to other navies that a major effort to achieve another significant technical advance would be necessary if it were to maintain its supremacy. The firm of Gibbs & Cox, Inc. was assigned a major role in this effort, starting with the experimental destroyer, DD828, the U.S.S. *Timmerman*, followed by a series of other designs for destroyers, frigates, escorts, guided missile ships, landing craft, hydrofoils, and others.

The end of the war also brought a demand for many designs for ship conversions and new, modern cargo liners and bulk carriers and the well-known passenger-cargo ships, *Santa Rosa* and *Santa Paula*, which replaced the earlier ships of the same name. The strong interest with which W. F. Gibbs followed every detail of these designs did not prevent him from pursuing many other interests as well.

When the Gibbs brothers were boys in Philadelphia, their father often permitted the family coachman, a former member of the city Fire Department, to drive the boys to fires, taking them from school, if necessary. This developed in W. F. Gibbs a fascination with fire fighting which lasted all of his life. While

still in college, he investigated the possibility of designing a fire engine more powerful than those then in service. In 1930 he developed a design for a powerful pumping engine but was frustrated because there was no gasoline or diesel engine available that was sufficiently powerful, light, and compact for his purpose.

Because of his interest in the subject, however, the New York City Fire Department retained him as a consultant and, in 1937, he designed and supervised the construction of the New York City fireboat *Fire Fighter*. Still the most powerful fireboat in the world, the *Fire Fighter* has demonstrated its great value many times at waterfront fires which were unapproachable by other means or even by ordinary fireboats.

The contrast between the performance of the *Fire Fighter* at large fires and the relative ineffectiveness of the weak streams produced by ordinary fire engines remained as a challenge. New and more powerful diesel engines were developed after the war. In 1962, together with the Mack Truck Company, Gibbs developed for New York City a Super Fire Engine Pumper and Tender with the capability of throwing a powerful stream of water into fires which could not be reached by any other equipment. This was not a single vehicle but a veritable task force consisting of the pumping engine and several hose-carrying tenders. It is easily the most powerful weapon against large fires in the world today.

The office of the president of Gibbs & Cox, Inc. was famed for its simplicity and austere appearance. For many years, Gibbs had no desk but perched on a stool at a drawing board. These he retained even after he moved to a chair and a simple table. He worked surrounded by activity and several secretaries were constantly kept busy supplying him with information and transmitting his numerous instructions and messages.

Devotion to ships, fire engines, and business appeared to many to be an all-consuming passion which took W. F. Gibbs

to his office for long hours seven days a week. He was usually the first to arrive and often the last to leave.

Francis Gibbs, as he was widely known by family and friends, had many other interests as well. He frequently attended the theater, symphony, and opera and had many friends in the artistic world, for he appreciated quality and superb performance in any field of endeavor. He maintained a box at the Yankee Stadium for many years. He was a vestryman and active supporter of St. Thomas's Church on Fifth Avenue.

A keen sense of humor and a delight in surprising his listeners made him a most effective extemporaneous speaker before an audience of any size. He believed strongly that a sense of humor is vital in any field of endeavor.

Great engineering projects require the coordinated efforts of many people. William Francis Gibbs was a natural leader, who inspired great loyalty in his staff and confidence and cooperation in those with whom he did business. His extraordinary enthusiasm for his work set the example which drove all who worked with him to greater efforts to maintain the high standards of performance that he demanded. He took a close personal interest in his employees and quietly, often anonymously, assisted those in need.

Active almost to the end, William Francis Gibbs died on September 6, 1967, at the age of eighty-one. Following services at the Madison Avenue Presbyterian Church in New York, interment was at the First Presbyterian Church Cemetery, Princeton, New Jersey. He is survived by his wife, Vera; his brother, Frederic; his sons, Francis and Christopher; a stepson, Adrian Larkin; and two grandchildren.

At a meeting of the Council of the National Academy of Engineering on November 16, 1967, the following resolution was adopted:

MEMORIAL RESOLUTION—WILLIAM FRANCIS GIBBS

RESOLVED, that the following statement be placed in the minutes of the Council as a memorial to William Francis Gibbs:

WHEREAS, with the death of William Francis Gibbs on the 6th of September, 1967, the National Academy of Engineering lost one of its outstanding members—a distinguished naval architect and engineer, and a pioneer in ship design and technology who greatly advanced his profession; and

WHEREAS, he will long be remembered by his friends and associates for his vision, his energy, his penetrating intellect and good judgment, his strong sense of public service and responsibility, and his generosity: Therefore be it

RESOLVED, that the National Academy of Engineering record its great sorrow on the passing of William Francis Gibbs.

EDUCATION, HONORS, AND DISTINCTIONS

EDUCATION

Harvard University, 1906-1910

Columbia University Law School, 1911-1913, LL.B.

Also, graduate work in economics, Columbia University, 1911-1913,
M.S.

HONORARY DEGREES

Doctor of Engineering, Stevens Institute of Technology, 1938

Doctor of Science, Harvard University, 1947

Doctor of Engineering, New York University, 1955

Doctor of Science, Bowdoin College, 1955

HONORS

1919 War Department Certificate in Recognition of Services,
World War I

1943 American Design Award

1946 David W. Taylor Gold Medal (Society of Naval Architects
and Marine Engineers)

1946 Phi Beta Kappa (Honorary), Harvard Chapter

1946 Trustee, Thomas Alva Edison Foundation, Inc.

1947 Presidential Certificate of Merit, World War II

1951 Holland Society of New York Distinguished Service Gold
Medal

1953 National Transportation Award for 1952

1953 Trustee, United Seamen's Service

1953 Franklin Institute Gold Medal

1955 First Recipient of the Elmer A. Sperry Award

1959 Michael Pupin Medal, Columbia Engineering Alumni Asso-
ciation

1960 Allied Professions Medal, American Institute of Architects

1961 Virginia Museum of Fine Arts Award

1962 William S. Newell Memorial Award, United Seamen's Service

1964 Military Order of the World Wars, New York Chapter, Cer-
tificate of Recognition of Services

1964 Elected Benjamin Franklin Fellow of Royal Society of Arts

- 1964 Military Order of the World Wars Citation for Distinguished and Exceptional Services
- 1965 Navy League of the United States, New York Chapter, Scroll of Honor in recognition of Services

MEMBERSHIPS

American Bureau of Shipping: Technical Committee
 American Philosophical Society
 American Society of Mechanical Engineers: Honorary Member (Fellow)
 American Society of Naval Engineers
 British Nuclear Energy Society
 Edison Foundation Trustee
 Institute of Aerospace Sciences
 Military Order of the World Wars
 National Academy of Engineering (1965)
 National Academy of Sciences (1949)
 Navy League of the United States
 Newcomen Society
 New York Academy of Sciences
 New York Bar Association
 North East Coast Institution of Engineers & Shipbuilders
 Phi Beta Kappa Association
 Royal Institution of Naval Architects
 Royal Society of Arts
 Society of Naval Architects and Marine Engineers
 United Seamen's Service

CLUBS

Broad Street
 Century
 Essex County
 India House
 James River Country
 New York Yacht
 Piping Rock
 Propeller
 University

FEATURE ARTICLES ON W. F. GIBBS

- "Technological Revolutionist," *Time*, September 28, 1942
- "The Mysterious Mr. Gibbs," *Saturday Evening Post*, January 20, 27, and February 3, 1945
- "The Love Affair of William Francis Gibbs," *Fortune*, August, 1957
- "Mr. Gibbs' Baby," *New Yorker*, November 16, 1957
- "Profiles: The Best I Know How," *New Yorker*, June 6, 1964