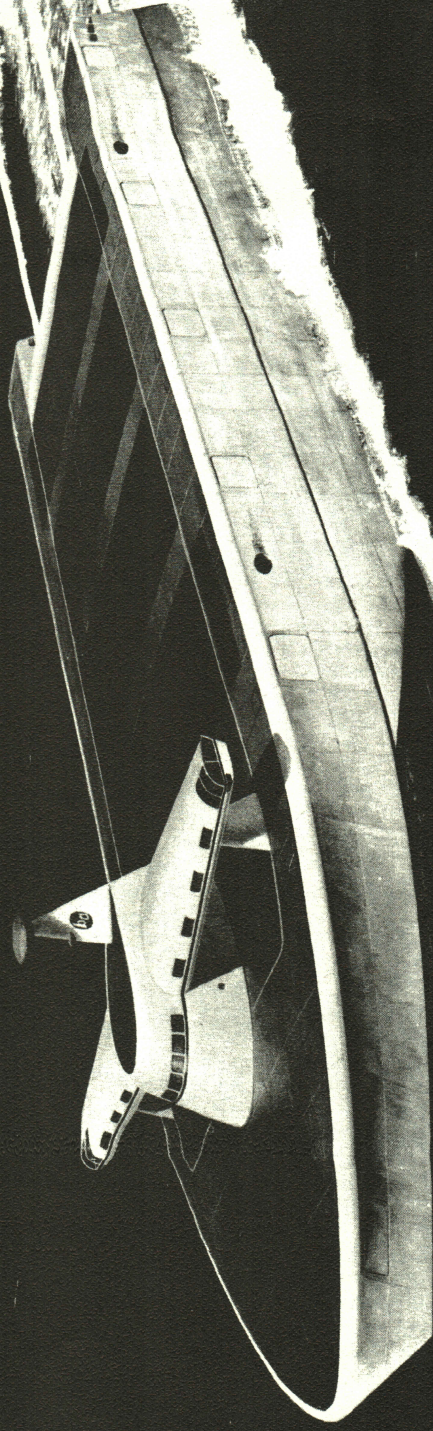
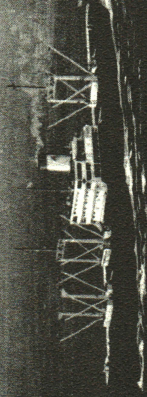


The BINNACLE



WINTER 1970

THE BINNACLE

California Maritime Academy's
Vallejo, California 94590

Quarterly Publication

Editors G.L. Lund, 72-D
R.J. Miller, 72-D
Writers R.M. Butler, Jr., 72-D
D.M. deBourguignon, 72-D
D. Dindio, 73-D
D. Huff, 72-E
H.M. Portz, 71-D
Advisor M.H.K. Aschemeyer

SUBMARINE TANKERS — a possible reality

by ROBERT M. BUTLER, Jr.

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ON THE COVER

High-speed transports traveling on a cushion of air, such as this streamlined vehicle, are being studied by the Bell Aerospace Division of Textron as a new means of transoceanic shipping. This new concept of transportation is called a Surface Effect Ship (SES). According to Bell Aerospace engineers, the vessel will cruise at 80 knots, greatly exceeding present ocean freighter speeds. Bell's SES concept shown here has an overall length of 420 feet, beam of 140 feet and weighs 4,000 gross tons. Lift and propulsion is provided by 140,000 shaft-horsepower engines. The air cushion supporting the SES is contained by solid side walls with flexible rubber bow trunks which allow the ship to pass over water obstacles without damaging the hull.



PROPELLER CLUB

by H.M. PORTZ

The Propeller Club has recently purchased ten historic photographs from the San Francisco Maritime Museum relative to the Carquinez Straits area. Perhaps the most striking of the ten is the lifting of the center span of the Carquinez Bridge into position back in 1937. These interesting photographs will be displayed in lieu of the present charts in the main corridor of the Residence Hall.

In regard to meetings, unless you as members show a little more interest in the meetings they will be discontinued until after cruise. Any suggestions as to possible speakers, activities, or projects will be well received by any of the club officers. Our Port has been one of the most active in recent years, but it will take support from all of you to make it even better.

SUBMARINE TANKERS — a possible reality

by ROBERT M. BUTLER, Jr.

Since the discovery of oil at Prudhoe Bay, Alaska, there has been an unrelenting search for a way to bring the crude material out of the Arctic region. This search has challenged the imaginations of men, and the biggest obstacle which has to be overcome in finding a solution to the problem is the hostile environment.

The icebreaker type tanker vessel and an over-land pipeline have been suggested to transport the crude material to warmer areas, but these solutions must still face the threats of the region. These factors have placed added interest on the submarine tanker.

The primary advantage of this type of vessel would be in the fact that it could be loaded at the oil site and then travel under the ice through the Northwest Passage to the warmer regions of the Atlantic Ocean. This means of travel would eliminate almost all threat from the Arctic environment and would allow

for more precise navigation and schedule adherence.

The submarine tanker may seem like a relatively fantastic dream, but in reality it is quite possible. General Dynamics Corporation has recently displayed its model of a submarine tanker at the Offshore Technology Conference in Houston, Texas, and proposals have been made to build such a tanker vessel by the Quincy, Massachusetts, submarine building firm for five major oil companies.

By design, the submarine tanker would have a beam of 140 feet, a depth of 85 feet, and an overall length of 900 feet. The proposed vessel would carry a total of 170,000 tons of crude oil, travel at a speed of 18 knots, and operate with a crew of 49 men with accommodations for 57 people.

The submarine tanker has great potential if it is developed, and it is well within the reaches of practical reality. The American Merchant Marine may be headed for an exciting new era.

MATSON: COMING OR GOING

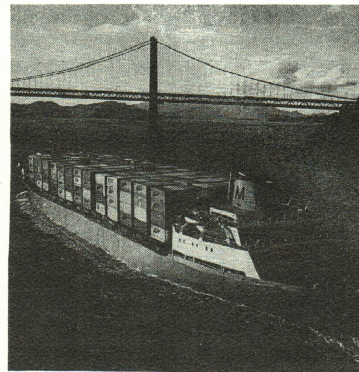
by D.M. deBOURGUIGNON

For 88 years Matson Navigation Company, a wholly-owned subsidiary of Alexander & Baldwin, Inc., has been the tallest American name in Pacific shipping. But for how much longer will they be able to maintain this reputation? For twelve years, Matson has been shipping fully containerized cargo to Hawaii. The flagship of the Matson company, *Hawaiian Enterprise*, has been in service between the West coast and Hawaii for some time. She was joined just recently by her sister ship *Hawaiian Progress*. The *Enterprise* and the *Progress* are both hauling record cargoes of more than one thousand containers. The *Hawaiian Legislator* is also on the Hawaii run. All three ships are able to haul 2,500 containers and better than 500 automobiles in one trip. This fact sounds quite impressive until one realizes that these are fifty per cent runs. That is, the containers come back empty! The *Legislator* hauls 300 containers and more than 500 automobiles. She returns carrying less than fifty automobiles and better than 250 empty containers.

With the sale of all of Matson's passenger ships, she is no longer carrying passengers. Matson just recently sold not only its Far East run, but also the Australia-New Zealand run. Since Matson sold all its overseas routes, and they

cannot use foreign built ships in domestic service, they also sold the two new ships being built for them in Bremen, Germany. Matson does definitely seem to be putting all its containerized eggs in one basket.

While their ships are staffed with very competent personnel, there seems to be some question as to the wisdom of the shoreside army of managers. Their vessels do indeed seem to be scheduled and operated by persons that have very little knowledge of ships. The schedule is arranged around the *Enterprise*, thereby holding up the rest of the ships and forcing the company to use extremely costly methods to complete their transportation task.



Transoceanic Hovercraft

by G.L. LUND

The British have led the way in air-cushion vehicles. The most advanced craft in operation to date is Britain's SRN-4, a 178-ton hovercraft capable of a speed of 70 m.p.h. in calm seas. Even in ten-foot waves it is capable of 53 m.p.h. The craft, built by British Hovercraft Corporation, carries 600 passengers, or 250 passengers and 30 cars, from Dover to Boulogne across the English Channel in 35 minutes. A 90 minute trip is required by conventional ships. The SRN-4 has four 19-foot propellers driven by 34,000-h.p. Rolls-Royce engines. Twelve-foot lift fans provide the air cushion.

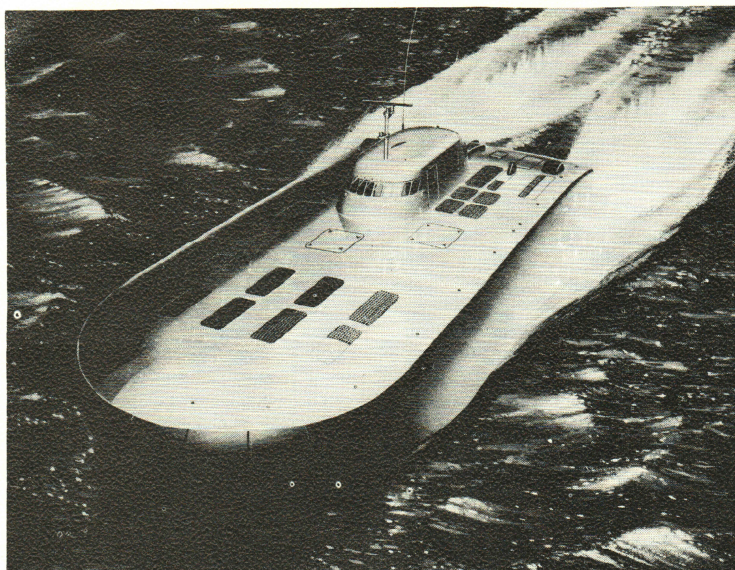
In America the Bell Aerospace Division of Textron has been pioneering the design, development and production of air cushion vehicles since 1958. Bell is currently doing studies on the commercial use of air cushion vehicles in such regions as the Arctic where high-speed amphibious ground transportation by wheeled, tracked or other conventional vehicles is difficult and often harmful to an area's natural environment.

Because the craft floats on a layer of air they can skim over land, water, ice, snow, mud or marsh. The air cushion is provided by one or more large, turbine-powered "lift fans" that force air downward through the craft into its underside where it is contained by flexible rubberized skirts.

Between 1965 and 1966 two 15-passenger Bell SK-5's shuttled more than 13,000 passengers across San Francisco Bay between Metropolitan Oakland International Airport, San Francisco International Airport and downtown San Francisco.

Bell is able to boast one of the few laboratories designed exclusively for air cushion vehicle research and development. The 28,000-square-foot laboratory was completed in 1968 at Bell's main plant near Niagara Falls, New York. The laboratory contains a 10,000-square-foot test basin where maneuverability tests are performed with the aid of a wave-making machine. A 50-foot diameter whirling arm annular tank is used to measure and analyze hydrodynamic forces.

Bell established operations in New Orleans in early 1969 after being selected by the U.S. Joint Surface Effect Ships Program Office to develop a 100-ton Surface Effect Ship test craft. The 90 m.p.h. test craft shown on the cover of this issue is scheduled for completion by 1972. It is designed as a high-speed



transoceanic transport of 5,000 tons and above. The ship will be capable of crossing the Atlantic in less than two days. It will carry containerized cargo and be highly automated. The craft is a joint venture of Bell, the U.S. Navy and the Maritime Administration. The craft will have solid catamaran-like sidewalls that contain the air bubble upon which it rides. The sidewalls will not permit am-

phibious operations, but are much better suited for transoceanic runs.

The development of the Surface Effect Ship will have a great impact on the maritime field. It will not only offer speed, but mobility and overall effectiveness. It will undoubtedly have a large effect on the current rules of the road. Imagine picking up a 90 m.p.h. blip on a radar scope.

A Squeeze on Bar Pilots

by M/S R.J. MILLER

In today's maritime picture, in which mariners shipping out earn higher wages annually with more time off than ever before, the San Francisco Bar Pilots are working harder than ever and ending up with less money than before.

Since the 1840's, the present bar pilots (25 in number) and their predecessors have been stationed 12 miles off-shore, where they board inbound ships whose skippers are leery about coming into the sometimes treacherous bay waters without expert guidance.

Aristocrats of the sea lanes, the pilots follow a personally hazardous occupation to make passage of the bar (the massive sandbar that curves around the entrance to the Golden Gate) a practical and safe commercial operation.

Their rates for service are fixed by state law. At present the average charge is \$180 for guiding a ship worth millions into a snug harbor.

Today the bar pilot earns \$25,518

annually, with a \$200 per month pension, while a ship's master earns \$31,514 annually with a pension fund of around \$1,000 monthly. In 1938, records show that a pilot was earning \$9,016 compared to a master's earnings of \$4,200 on a large commercial vessel. Moreover, pilots today put in a minimum 12 hours a day, seven days a week, working three months straight with the fourth month off; while masters have anywhere from four to six months off annually.

The pilots agree that inflation and archaic laws have caused the earning power of their organization to drop drastically. Formulas for correcting the bar pilots' plight might include rate reforms, union and shipowner recognition, and contracts.



Great Lakes Maritime Academy

by G.L. LUND

The Great Lakes Maritime Academy is a part of Northwestern Michigan College. It is the official State of Michigan Maritime Academy, and differs from the other state maritime academies in three ways. It is located in a fully accredited community college but gives only the Associate Degree at the completion of the 33-month training program. It is the only state academy on fresh water. It is non-military. The cadets are integrated with the student body, and only wear uniforms on cruise. The cadets are permitted to be married. The non-military character stems from the belief of those who started the academy that a military program is inappropriate for training men for Lakes ships.

The argument for establishing the academy at the Northwestern Michigan College in Traverse City is so outstanding students could be counseled and geared toward a transfer degree. The college has occupational programs and a philosophy geared to keep people in the fields they choose. It is expected that graduates will be more inclined to seek permanent careers on the Lakes than has been the tendency of their counterparts in the oceanside academies.

The academic subjects' emphasis is on mathematics and science, but courses in technologies, English, psychology, government and other fields are offered. Specialties include particular courses in maritime training geared for the Great Lakes.

The Academy's Spring Cruise is expected to be one of the most fruitful recruiting devices. The training ship *Allegheny* will visit each major port on the Lakes at least twice. The first visit will give the regional high schools counselors a chance to visit the ship and gain information to take back to their students. On the second visit interested students may visit the ship and meet professional counselors from the college.

College counselors are already thinking of possibilities and alternative for those who do not finish the program. Plans are that as students progress they will acquire the respective Coast Guard ratings as they qualify. If for any reason students find it impossible to go any further, they are still qualified at various levels of job entry.

The Academy has a fleet of ships. The *Allegheny* was built in Texas in 1944 as a fleet tug. It is 143 feet long and has a beam of 33 feet. After the war it was

converted for oceanographic research under the direction of Columbia University. In 1968, it was decommissioned and turned over to Northwestern Michigan College.

The *Hudson*, second in the Academy's fleet, was built as a Coast Guard Cutter in 1934. It is 110 feet in length with a 24-foot beam. It was dieselized and renovated in 1960, only to be declared inactive shortly thereafter. It was decommissioned and acquired by Northwestern Michigan in 1968.

The *Captain George* is a 65 foot vessel with a beam of 19 feet and was built in 1929 as a tug. It was acquired last year when Mackinac College terminated operations.

The *Anchor Bay*, built in 1953 as a

harbor tug, is 48 feet long and 12 feet in beam. The College acquired the vessel during the past year, and last summer rebuilt and refurbished it after it sustained an explosion in its pilot house.

The Academy also has other floating equipment including an LCM and some work barges. It hopes to acquire a number of small sloops for added curriculum in the fundamentals of sailing.

Besides the Great Lakes Academy, Masters, Mates and Pilots have announced plans to construct a \$10 million facility in Baltimore for the training of deck officers. The National Government is looking into the possibilities of opening an academy for river pilots, and the Nevada State Prison has set up a program to offer inmates an education in navigation in training for a career at sea. Dean Seymour has been asked to be a member of an advisory board for the Prison.

Will CMA Close?

by G.L. LUND

On October 2, the Long Beach Alumni Chapter had their first meeting of the fiscal year. Approximately thirty alumni and wives attended the dinner meeting which was held at the Reef Restaurant in Long Beach. The topic for discussion was the closing of CMA.

President of the chapter, Bob Piazza, presented a talk on the factors working against the Academy's existence. Mr. Piazza mentioned the Maritime Administration report by Robert Blackwell which was unfavorable to all State Academies. Closer to home, the California State Financial Board is expected to send a report to the Governor and Legislature which will be very damaging to CMA. It will probably recommend either the closing of the Academy completely or its conversion to a junior college.

Masters, Mates and Pilots recently closed their doors because of the large number of deck officers seeking jobs, and Mr. Calhoon, president of Marine Engineers' Beneficial Association, is crying that the State Academies are flooding the labor market. In this atmosphere, MM&P has reopened its training school and the Calhoon school is going strong. Mr. Piazza's presentation ended with a request for letters to be sent to the state legislature.

A brief talk was given on the condition of the "new" training ship and the present conditions at the Academy from a midshipman's point of view. As Mr. Piazza put it, the Long Beach Chapter is

made up of men who are interested in the Academy, not just sitting around telling sea stories. He also made an open invitation to the corps of midshipmen to call him collect anytime when problems arise at the Academy. Mr. Piazza (65-E) pointed out that many of the alumni are not too old to remember what conditions were like at the Academy.

Grad Makes Big Impression

OAKLAND (AP) — The 685-foot freighter *Panama* slammed into an Oakland pier with such force that it broke through a concrete wall and penetrated 65 feet into earth fill below the pier. The ship, capable of carrying 609 cargo containers, hit the pier two blocks from its intended dock in a dense fog.

The accident took place at 8:25 a.m. in what port officials described as a "super-intense fog." No one was injured either on the ship or dock. An early estimate put damage to the pier at over \$100,000.

The pilot, whose name was given as Paul Hoey (CMA '61) was on the *Panama* at the time of the incident. It was not known whether he was in charge of the ship at the time it ran into the pier.

Steel plates were ripped from the bow of the ship by the impact but no estimate of damage to the ship was immediately available. A spokesman for a steamship agency said that to drydock the large ship and repair the hull could easily cost several hundred thousand dollars.

MARITIME ACADEMIES — JAPANESE STYLE

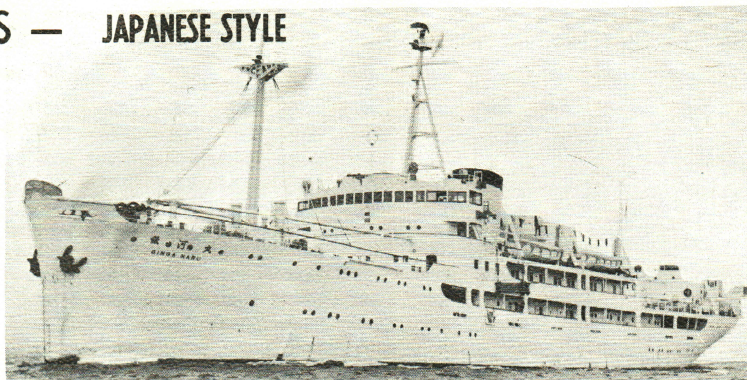
by M. DINDIO

Hell! Do you mean to tell me that you didn't know Japan had a maritime educational system? Well, they do. In fact, Japan's schooling program for sea-bound men is more comprehensive than the United States'. Not only does Japan have colleges for officer training, but they maintain an educational program for training of able-bodied seamen. The officer schools come under the jurisdiction of the Ministry of Education, while the A.B.'s schools are controlled by the Ministry of Transportation. The appropriate name, and justly called, for the whole shebang is the Institute for Sea-Training.

The Mitsubishi Steamship Company founded the first Japanese maritime school in November of 1875. It, of course, was named the Mitsubishi Mercantile Marine School. The training school was conducted on the ship *Seimyo-Maru*, which was moored at Sumida. By April, 1882, the government had taken over the Mitsubishi program and renamed it Tokyo Mercantile Marine College. Forty years later, the name was again changed to the present day Tokyo University of Mercantile Marine.

Many changes within the mercantile colleges took place from 1875 to 1970. Some of them developed and deteriorated due to the First and Second World Wars. Today, the secondary schools for officer training are at Toyama, Oshima, Hiroshima and Yuge. Advanced training for graduates of the secondary schools are located at the Universities of Tokyo and Kobe. The A.B. schools are situated at Kogima, Otaru, Koratsu, Miyako, Nanao, Kuchinotsu, Awashima, Moji and Shimizu. One school, the Marine-Technical College, is classified as an able-bodied school for the re-education of A.B.'s as officers.

The Japanese cabinet controls the mercantile educational system and operates five main ships for the practical sea-training of the students. The *Nippon-Maru* and her sister ship, *Kaiwo-Maru*, are steel sailing ships with two 600-horsepower diesel engines that can propel the ships at ten knots. The 318-foot long ships were built in 1930 and can carry nineteen officers, forty-seven ordinary seamen and 112 students. The *Hokuto-Maru*, built in 1952, is a steel, 247-foot steamship with a 1,700-horsepower turbine engine. Her maximum speed is thirteen knots. She carries twenty officers, thirty-seven ordinary seamen and



eighty students. When *Taisei-Maru* was built in 1948, her engines were the exact duplicates of the previous ship. She, however, is 310 feet long and carries twenty-one officers, forty-three ordinary seamen and 112 students. The *Ginga-Maru* is the biggest ship of the mercantile training fleet. She was built in 1942, is a 322-foot long steel steamship, and has a 2,100-horsepower diesel main engine. This ship carries fourteen more students than the *Taisei-Maru*.

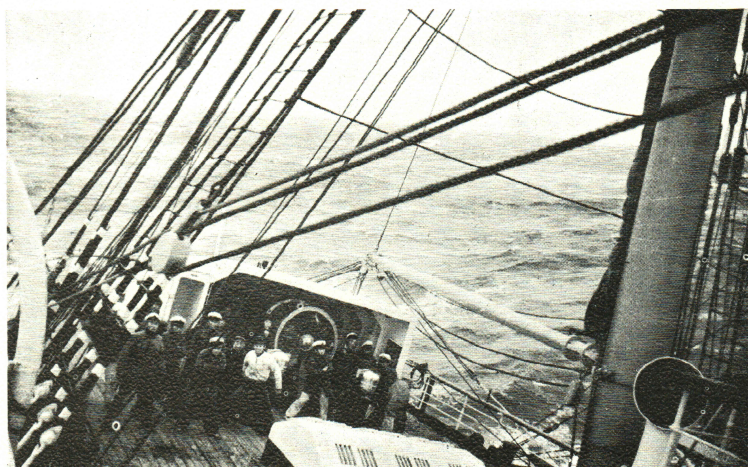
Entrance into these schools resembles the United States' requirements. Student expenses are nil except for their personal enjoyments and traveling fees to and from the colleges. Students who study for officers' degrees graduate in four years. Academic programs are conducted the year 'round; however, students do not attend classes all year. The time they do spend in class depends on which year of school they have advanced to. For example, the students at the secondary schools attend practical training in each of the first three years. During the last year, students are aboard ship for five out of ten months of that year. Each year the

two universities graduate 130 of both deck and engineer classification, while the upper secondary schools average 100 from each group.

† † †

The Japanese are making advances almost too fast to keep up with. The following is a news release on the newest training vessel from Japan:

TOKYO — Japan's Ministry of Transport now is training its first class of 180 crewmen for the merchant marine aboard the new 5,044-ton *Seium-Maru*, especially built for this purpose by Nippon Kikan (Japan Steel and Tube Co.). The vessel built at NKK's Tsurumi Shipyard carries an operating crew of 76 in addition to the 180 trainees. The sleek vessel utilizes a wide range of audio visual training devices and simulators in its special classrooms. Seven closed-circuit TV cameras are installed throughout the ship for remote monitoring. The ship has a surface speed of 16.5 knots and a cruising range of 20,000 nautical miles. She operates under Japan's Mercantile Marine University and Technical College.



CATAMARANS — Surprising Developments to Come

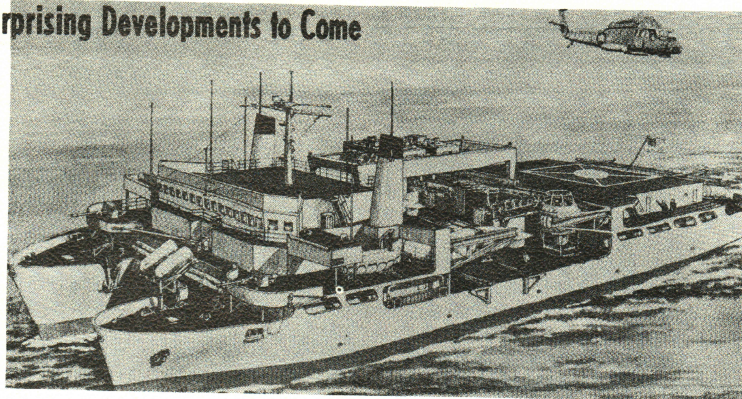
by D.M. deBOURGUIGNON

In the past few decades, there has been an ever-increasing amount of interest shown in the problems of mass transportation. All forms of transportation have been under-going extensive studies in an exhausting effort to curb these problems. Already, this nation is finding itself choked with inefficient and outdated modes of transportation. Transportation on the water has also received its share of studies. Many intriguing ideas have been put forth as possible solutions. One that is receiving much attention is the catamaran.

The catamaran is not by any means a new concept in water craft. The history of the catamaran goes back almost to the time when man first used a tree trunk for overwater transportation. The Polynesians are credited with constructing the first really seaworthy catamarans. They made almost unbelievable voyages across vast expanses of the Pacific from Tahiti to Hawaii and New Zealand.

One of the earliest accounts of Polynesian catamaran design was provided by the British explorer, Captain James Cook. He was so impressed with a 108-foot Tahitian war catamaran that he described it in some detail in his diary.

In the middle of the 17th century a British statistician named Sir William Petty began to experiment with twin-hulled sailboats. He did have a limited amount of success with his smaller boats but found that his larger boats were completely unmanageable.



In 1786 Patrick Miller, a Scotsman, built a three-hulled ship to be used as a ferry. She had five hand powered paddle-wheels and five masts to assist the paddle-wheels. She was reported to have been a good sea boat. Miller also designed two other catamarans that were steam powered.

During the 1800's many steam-powered catamarans were built for just about every purpose imaginable. Robert Fulton built what was not only the first catamaran man-of-war, but also the first steam-powered man-of-war. However, catamarans proved to be too costly to build and operate and all of them soon were abandoned as independently powered vessels.

After the turn of the century, little attention was paid to catamarans. However, between 1910 and 1914 there were three large catamarans built. All three were submarine salvage vessels. One was built for the Imperial German Navy, one

of the Russian Imperial Navy, and one for the French Navy. The only other efforts at catamarans since then have been experimental craft and a few fishing boats.

In the past five years the government has produced several catamarans for use as research vessels. So far, they have all been propelled by diesel engines.

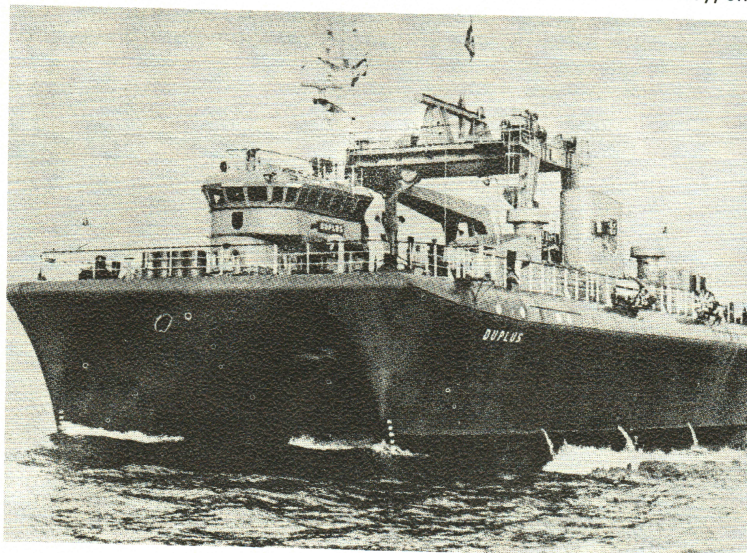
The U.S.S.R. has constructed many catamarans in the past seven years. All but one of these are for passenger use. The other one is used primarily as a crane ship. She was designed to take large construction modules from a building area ashore to an erection site at sea.

The Japanese, as could be expected, have shown considerable interest in catamarans. Since 1960, one of Japan's largest shipbuilders has turned out twenty twin-hulled ferries. The first sea-going catamaran was launched in 1964. She was designed to operate between the various ports in the Inland Sea of Japan.

The Dutch have turned out two twin-hulled vessels in the last two years. One is for use by the Dutch government as an oceanographic and hydrographic research vessel. The other was for a pipelaying company in California.

The great stability of catamarans is the main reason there has been so much interest shown in their use for submarine rescue, oceanographic research, offshore drilling construction and commercial fishing purposes. Low speed maneuverability and high speed directional stability are two of the all-important reasons that catamarans are being researched with so much vigor.

The large, feasible, twin-hulled Merchant ship is still many years in the future. However, the day will come, after the Navy has perfected their twin-hulled destroyers and aircraft carriers, that the merchant service will see many fast, large, and efficient twin-hulled cargo ships.



- SPORTS -

THE KEEMA SUPER BOWL

by D. HUFF

It was a somber afternoon when the Keema All-stars faced the 1-E divisional champions to settle once and for all the question of football supremacy at CMA. The powerful All-stars were considered by many to be a straight-point favorite over the champs who had a 6-0-1 record for the year.

While the mosquitoes thickened over the field, the captains of both teams, Henry Fredrickson and Glen Meyer for 1-E and Dale Ferranto and Gene Mapa for the All-stars, came out on the field for the toss of the coin. The All-stars won and elected to receive. Huff, injured by a pre-game mishap, kicked off for the champions, and the game was on its way. Bob Papenhausen picked up the ball on his own 15 yard line and ran it back to midfield. From there the All-stars went down the field on a quick drive culminating in a touchdown on successive screen passes to Steve Chalk. The point after failed and the score remained 6-0, All-stars.

The All-stars and their rooters, now assured of an easy victory, jubilantly took to the field for their first kick-off. Lonnie Walter boomed a high kick to the 1-E ten yard line where T.S. Hermes received it. From there it was only a matter of following the clocking all the way up the field for a 65 yard return and a touchdown. The stunned All-stars dug in on the one yard line and the extra point by Hermes failed leaving the score at 6-6.

Due to the great defensive efforts of both teams, the remainder of the first half continued practically scoreless. The only other score came near the end of the second quarter. 1-E had the ball on their own 40 yard line and with 6 yards to go on the fourth down Hermes went in to punt. Under a light rush, he flipped a pass to Steve Mache on the sidelines for the first down. Three plays later quarterback John Gamba passed again to Mache for the second 1-E touchdown. Again the point after failed and at halftime the score was 12-6.

In the second half, the game settled down to a defensive battle. Both lines were hitting very hard and it was not until the middle of the half before anyone was able to score again. 1-E drove down to the All-stars' one yard line. The All-stars dug in again to stop the run and QB Gamba tossed a bootleg pass to Stan Gibson in the end zone. The point after failed again and the score remained 18-6.

No-one came close to the goal line again until the last two minutes of the game when Tom (The Rabbit) Givens received a handoff near his own 3rd yard line and commenced a brilliant run from scrimmage to the 1-E ten-yard line. From there Dale Ferranto ran it in for the last touchdown of the game. The only extra point scored that day was run across by Ted Cook on an end-around. The final score was All-stars 13 and 1-E 18.

Both teams were fairly effective in controlling the opponent's running game. The ability of 1-E to provide adequate pass protection plus the size and speed of their receivers were probably the deciding factors in the game.

One ironic play that had possibly the biggest bearing on the game came early in the second half when Dale Ferranto completed a pass to Grant Ferguson for an All-star touchdown. The play was

called back on a penalty and that is the closest the All-stars ever came to winning the game.

ENSENADA '71

The 1971 Newport to Ensenada International Yacht Race may not prove to be as exciting, as long, or as costly as the 1970 race; however, it will be as much fun. Presently it is hoped that the Academy will have two entries. Mr. Ruff, the sailing club advisor, has lined up the use of a Coronado 34 and Bill Grant, Dave Grant's father, has offered us the use of a new, full-race Ericksen 29.

Between the two boats the Academy should be able to field a crew of twelve midshipmen. In any event a questionnaire will be forth-coming for all interested in crewing.



- SPORTS -

BASKETBALL

The 1970-71 edition of the California Maritime Academy Basketball Team promises to be one of the best ever. A lack of height and depth is made up by a quiet, determined desire to excell. Coach Harry Diavatis expects to improve on last year's dismal 2-5 record with four starters returning, including the leading scorer and rebounder. This year also represents a beefed-up schedule with many four-year colleges added to the list. For the first time in years, the Varsity Basketball team has scheduled games all through the month of January, due to the late cruise and also to the up-grading of the Varsity Sports Program. The highlight of the season, no doubt, will be the weekend trip to Tahoe Paradise to play Tahoe College on a home-and-home basis. Tahoe College, with a large, experienced team, looms up as the team to beat on the Academy's schedule, along with such schools as Sacramento State, Stanislaus State and the always tough veteran team of San Quentin.

The lack of depth on the team, according to Mr. Diavatis, is directly related to some of the more outstanding basketball players on campus who for one reason or another declined to come out for basketball. "There are several talented athletes on campus who could have helped us immensely toward a winning season if they would have turned out. I think if they realized how important this basketball season will be to the Varsity program and also to the Midshipmen's overall morale, their decision may have been different," said Mr. Diavatis.

LINE-UP

PAUL ARSENAULT — 18, 6'0", 165lbs., 3rd Class. Good prospect from Claremont High School in San Diego.

Conscientious, hard working — should see a lot of action as a reserve; improves daily.

TERRY BURKE — 22, 6'2", 185lbs., 2nd Class. Outstanding basketball and football player at Elk Grove High School, Sacramento, Captain of Basketball team, All conference, lettered junior and senior years. Sat out third class year at Academy — quiet competitor and leader; ability to hit from anywhere; sure starter; enjoys hunting, fishing and water skiing.

MIKE DINDIO — 17, 5'10", 175lbs., 3rd Class. Outstanding all-around athlete at 29 Palms High School. Dedicated, aggressive, doesn't know how to quit, good leadership abilities; good chance of breaking into the starting lineup; All-League Baseball in High School, football team captain.

JIM ELDRIDGE — 19, 5'11", 160lbs., 2nd Class. Second year Varsity, quiet determination made him sixth man last year; average 9 points per game. Probably most dedicated athlete on team, thrives on basketball — best free-throw percentage last year — probable starter.

STAN GIBSON — 21, 6'4", 190lbs., 2nd Class. Third year Varsity man, 2nd leading scorer last year with 14 point per game. Co-captain, top rebounder, very aggressive, always guards other team's big man, good outside shot — looking for a great year. Graduate of Armijo High School, Fairfield; first baseman and pitcher on varsity baseball team at Academy; hobbies include Chess.

STEVE GIBSON — 20, 6'3", 180lbs., 2nd Class. Leading scorer on Varsity last year with 17 points per game. Second in rebounding to brother Stan. Will be counted upon to get his share of the boards again this year — has good ability to get position, good inside shooter; also from Armijo High School.

LOUIS HANNIGAN — 18, 5'9",

135lbs., 3rd Class. From St. Joseph's High, Alameda. Smallest man on team, hard worker, desire and willingness to learn to make up for size and lack of experience. Should help team as a reserve. Hobbies: Long distance running, cycling.

JOHN MCGUIRE — 18, 6'1", 175lbs., 3rd Class. Played football and basketball at Tustin High School. Quick learner — should see a lot of action after gaining some experience. Good future prospect, quiet, determined worker. Hobbies: flying, motorcycling.

VARSITY BASKETBALL SCHEDULE 1970-71

Nov. 19	... Solano College (Scrimage) at Vallejo High School
Dec. 1	... Bethany College at Home
Dec. 2	... Concordia College at Home
Dec. 8	... San Quentin at San Quentin
Dec. 11	... Stanislaus State College at Modesto Junior College
Dec. 14	... Mare Island at Home
Jan. 6	... Sacramento State College at Sacramento
Jan. 12	... Simpson College at Oakland
Jan. 14	... Tahoe College at Home
Jan. 19	... Simpson College at Home
Jan. 24	... Tahoe College at Tahoe Paradise

California Maritime Academy
P.O. Box 1392
Vallejo, California 94590

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