The Central Intelligence Agency financed the construction of a multimillion-dollar deep-sea salvage vessel, constructed by Howard R. Hughes, the eccentric billionaire industrialist, according to high Government officials. The salvage vessel, constructed by Hughes, did successfully recover about one-third of a Soviet nuclear submarine from the Pacific Ocean in an unsuccessful effort to recover hydrogen-warhead missiles and codes, which were believed to be on board. Bodies of 70 Russians were found in the craft and were buried at sea.
A nuclear-powered ballistic missile submarine of type that sank in the Pacific in 1968 raised from the ocean bottom did not include either the ship's missiles or its code room.

Instead, the Government officials said, the C.I.A.-led expedition recovered the forward section of the ship containing the bodies of more than 70 Soviet seamen and officers who went down with the vessel when it mysteriously exploded in 1968 and sank in more than three miles of water. The Soviet submariners were buried at sea in military ceremonies that were filmed and recorded by C.I.A. technicians.

Although thousands of scientists and workmen had security clearance for the program, known as Project Jennifer, the submarine salvage operation remained one of the Nixon and Ford Administrations' closest secrets.

Debate on Project

The Jennifer operation had provoked extended debate inside the United States intelligence community since the C.I.A. proposal to build the salvage vessel, with the cooperation of Mr. Hughes, first underwent high-level evaluation in the early nineteen-seventies. Critics of the program have said that the value of the information that could be gleaned from what they depict as outmoded code books and outmoded missiles did not justify either the high cost of the operation or its potential for jeopardizing the United States-Soviet détente.

The program's defenders, who include William E. Colby, Director of Central Intelligence, have said that the successful recovery of the whole submarine would have been the biggest single intelligence coup in history. They argue that even a 1968 code book would give the Government's signal experts a chance to evaluate all of the Soviet submarine communications that were in existence then and perhaps for years before the ship sank. Recovery of the missiles also would help provide standards for judging the existing analysis of such weapons as compiled from the precise scrutiny of aerial photographs taken by satellites, Government experts have maintained.

In recent weeks, Mr. Colby has formally requested Secretary of State Kissinger for permission to stage another attempt next summer to salvage the rest of the submarine, which reportedly is lying in nearly 17,000 feet of water about 750 miles northwest of Oahu, Hawaii.

Mr. Kissinger, who serves as head of the 40 Committee, the secret Government panel that reviews and finances all intelligence operations, supported the efforts of the C.I.A. to keep the salvage program secret until a decision could be made on continuing it. Privately, however, he is known to have dismissed the Jennifer program as not being of sufficient value.

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CIA that it would publish a comprehensive article on the operation if it became known that others were about to disclose details publicly.

Tonight the story of the Soviet submarine and the salvage effort was circulating widely in journalistic and Government circles in Washington. Publication by one or more correspondents appeared imminent, despite the efforts of the CIA to convince the news media that its secret should be kept, for the time being.

High Government officials said Mr. Hughes was selected to provide the cover needed to shield the true purpose of the vessel, because of his widely publicized penchant for secrecy, his known interest in deep-sea mining and the fact that his wholly owned company—The Summa Corporation—had experience in large-scale construction projects.

In addition, the Hughes Aircraft Company also has long been involved in the construction and development of space satellites for heavily classified intelligence purposes and now employs a number of former high-ranking CIA and military men.

Another factor behind the selection of Mr. Hughes, the officials said, was his patriotism. The officials insisted that Mr. Hughes make very little money in the construction of the Glomar Explorer.

They also said Mr. Hughes was maintaining title on the vessel only under a series of complex trust agreements with the CIA and the Government similar to those utilized for other proprietary "assets" of the CIA, such as Air America, its subsidized airline.

Government officials acknowledge that more than $250-million has been spent thus far on the Glomar Explorer and Project Jennifer, with other reliable estimates placing the funds authorized at more than $350-million.

Senior members of the House and Senate were briefed on the program, the officials said, although it could not be learned which legislators were informed.

1958-Model Craft

Operation Jennifer was initiated shortly after the Soviet submarine, a 1958 model of the "Hotel" class that was believed to have sailed from the Soviet port of Vladivostok, sustained a series of on-board explosions and sank while cruising in the Pacific.

American intelligence officials emphasized that the Soviet craft was found, after it sank, through what was described as "passive" means—that is, not from signal or other communications intercepts—and there was no chance for the United States Navy to rescue any crew members.

Other sources said the Navy's sonar underwater listening devices apparently were able to detect the sounds of underwater explosions at depths far deeper than the Soviet Union could intercept and thus knew the specific location of the submarine on the ocean floor.

During the recovery attempt last August, the official sources said, American technicians were successful in grabbing and lifting the submarine from the ocean floor and raising it about...
halfway to the surface—roughly 8,000 feet—when there was a failure in the lifting devices and part of the ship fell. An official talked of "overpressure" in connection with the failure of the lifting devices. The salvage vessel was operated under subcontract for the Hughes corporation by Global Marine, Inc., of Los Angeles, a firm known for its expertise in deep-sea operations.

Government intelligence officials noted that Global Marine has cooperated with the Soviet Union in a series of underwater research and experimental drilling operations and suggested that public knowledge of its involvement in the submarine recovery operation would not only embarrass the firm but said it might limit its future joint research ventures with the Soviet Union.

A Bitter Dispute

Complicating the issue is a bitter dispute between officials of the Navy, whose Research and Development Branch was involved in the original planning to salvage the submarine, and the C.I.A., whose scientific and technology office developed the concept of constructing the Glomar Explorer under cover.

C.I.A. officials insisted that coordination with the Navy was smooth, but a number of Navy officials have bitterly criticized the salvage operation in interviews. At one point, Government officials acknowledged, the Navy expressed some reservations about the legality of attempting to interfere with another country's sunken vessel, but it ultimately was decided at high levels in the Nixon Administration that there were no legal bars to the operation.

One retired Navy admiral who was aware of the Jennifer operation while on active duty complained that the "only real intelligence [to be obtained from the Jennifer operation] is the metallurgical stuff" resulting from an analysis of the submarine's hull and various internal sections. "The codes wouldn't mean that much today," the retired admiral said in an interview, "even if you recovered their code machine. They [such machines] have a tremendous number of disks and circuits and you wouldn't know what combination was used." The admiral added that even if the codes could be broken, they would be made intelligible only for a limited period because of what he depicted as a random restructuring of the various circuits and codes that was completed by the Soviet submarine communicators every 24 hours.

Burglary Revelation

The submarine project was first publicly mentioned by The Los Angeles Times on Feb. 8, in a report stemming from a police inquiry into a bizarre burglary last June 5 at the offices of Sunma Corporation, the Hughes holding company that—in the public's eyes—owned the Glomar Explorer. Documents said to have been taken from a Hughes office safe in the burglary disclosed that the C.I.A. had contracted with the corporation to raise the sunken nuclear-powered submarine, the newspaper said. The report was denied at the time by Paul Ryan, general manager of the ocean mining division of Mr. Hughes's company.

At least four well-informed sources have said in recent interviews that in their opinion the initial justification for withholding publication of the story no longer existed because of the disclosures made in The Los Angeles Times. Until then, a number of past and present high-level intelligence officials said, the Russians did not know that the United States had found and attempted to salvage the submarine.

"What that story's done is blown the operation," one official said. "We can't use it again."

High-ranking American intelligence officials acknowledged in a recent discussion that they assumed "the Russians picked up the [Los Angeles Angeles Times] story. The question is what are they [the Russians] going to do about it." The intelligence officials argued that further public disclosure of the Jennifer operations would amount "to rubbing the Russians' noses in it" and could lead to adverse diplomatic consequences.

They also suggested that, despite the published accounts, the Jennifer operation would be continued even if it should fail, mainly because of the importance of recovering the remaining two-thirds of the sunken submarine. One high official said that "there's not a lot they [the Russians] can do."

"We have the legal right to pick something up off the bottom," he said.

Some Success Seen

One high-ranking member of the Ford Administration took exception to the description of the operation as a failure and said he had seen reports, which he acknowledged could have been biased, describing the adventure as 50 per cent successful.

"If the project was sold on the basis of what we're going to get," the official added, however, "O.K., we didn't get it."

Another informed intelligence official said, "In terms of the initial objective of the project—the recovery of Soviet missiles with hydrophones and the submarine's nuclear power plant and its code books—it was a failure."

Another source said the preliminary review of the materials salvaged last summer indicated that the Russians had significantly altered the structure and design of the 1956 submarine, initially configurated to carry three intercontinental missiles, and noted that such information could prove invaluable in disarmament talks.

Even if only partly successful, one high-ranking American said, "It was a fantastic operation."

The official was referring to the fact that the C.I.A. was able to finance the construction of the Glomar Explorer to successfully initiate salvage operations without any public inking of the true intent of the mission. A number of officials who were interviewed praised repeatedly the C.I.A.'s "cover" for the mission.

A New Industry

One former high-ranking C.I.A. man noted that by financing the Glomar Explorer, publicly described as the most advanced deep-sea mining vessel in existence, the C.I.A. may have been responsible for the creation of a new industry—deep-sea mining of mineral deposits.

When completed in mid-1973, the 36,000 ton vessel was 618 feet long and more than 115 feet wide, and its six motors were capable of providing 12,000 horsepower to drive the ship at speeds up to 12 knots. In addition, the Glomar Explorer was equipped with a 209-foot derrick capable of lifting 500 tons and a number of other lifts nearly as powerful.

Throughout its construction, at the Chester, Pa., yards of the Sun Shipbuilding and Dry Dock Company, there were newspaper reports about the eventual deep-sea mining mission of the vessel as well as published comments about the secrecy—a tradition of the Hughes empire—that marked her construction.

"If all sails smoothly" The Philadelphia Inquirer reported on May 13, 1973, as the Glomar Explorer neared completion, "the mystery ship may be at work next year scooping such metals as titanium, manganese, uranium, copper and nickel up out of the depths to add to the fortune of the world's wealthiest recluse."

The Government sources acknowledged that the C.I.A. had taken over the project from Global Marine, and that the Russians had not been informed of the mission. They also suggested that, de-
knowledge that the C.I.A. turned to deep-sea mining as a possible cover early in 1970 because the Soviet submarine happened to sink in an area of the Pacific noted for its extremely large deposits of valuable manganese nodules. A 1973 study of the National Science Foundation concluded that the deposits off the Hawaiian plateau were the most abundant within the North Pacific and contained the highest values of copper and nickel.

This fact, coupled with the heavy publicity over the Glomar Explorer's alleged deep-sea mining mission, provided the "cover" needed by the C.I.A. to attempt the salvage operation without Soviet knowledge and, thus, without possible Soviet interference, the sources said.

They added that a key concern throughout the history of the secret operation was the possibility of violent interference—and possible military action—by the Russians if they happened to learn the true purpose of the Glomar Explorer's mission. The ship could not operate in military escort or protection, for obvious reasons, the sources noted.

No Suspicions Raised

The refusal of the Hughes corporation to provide any detailed data on the workings of the Glomar Explorer and the company's order to all subcontractors that nothing be made public during construction of the vessel did not raise suspicions because of Mr. Hughes' known extraterritoriality. In recent interviews, a number of senior officials of the Summa Corporation still denied knowledge of the Jennifer operation and insisted the secrecy was needed to protect the industrial techniques that they said were inherent in the ship's construction and mode of operation.

In addition to the Glomar Explorer, the salvage operation required a deep-diving barge that was constructed in 1971 and 1972 by the National Steel and Shipbuilding Company, in San Diego and designed by the Lockheed Aircraft Corporation's Ocean Systems Division. The 106-foot-wide barge, which reportedly has 18-foot-thick walls to help provide ballast, was not directly utilized in the submarine salvage operation, Government officials said, although there were numerous newspaper accounts in 1973 and 1974 saying that the barge played a direct role in the deep-sea mining operations.

As explained by intelligence officials, the barge's sole function was to hide the Soviet submarine once it was brought up from the bottom. As such, it was hoisted by crane, towed and then retrieved. This capability was built into the barge to help hide the salvage submarine from the possibility of inadvertent detection by Soviet satellites.

Precisely how the Glomar Explorer was outfitted to attempt the recovery of the downed submarine could not be learned, nor could any accurate cost estimate be made for the vessel. One official of the Summa Corporation said in an interview that the Glomar Explorer alone cost more than $100-million. Some newspaper accounts have put the price tag for the ship at $250-million. It also could not be learned whether either of those estimates included the expensive dredging and derrick equipment utilized in the salvage operation.

New Technology

In recent interviews, high-level American intelligence officials seemed vague about the Glomar Explorer's potential for actually conducting deep-sea mining operations. One official said it would be a "rejiggering" of the ship for the C.I.A. to be "rejiggered" into a deep-sea mining vessel. Other officials have boasted in interviews, however, that the C.I.A. technology involved in the construction of the ship had led to breakthroughs in the feasibility of such mining. Officials also noted that the Government was retaining the patent rights stemming from any technical breakthroughs in deep-sea mining techniques that resulted from the construction of the Glomar Explorer and from its attempted submarine recovery.

It could not be learned how and from what Treasury accounts funds for the construction of the vessel and other costs were appropriated by the C.I.A. and distributed to the Summa Corporations. The intelligence agency has long had contractual arrangements with the Hughes Aircraft Company and Lockheed's space and missile division for satellite work funded through the National Reconnaissance Office. This is the highly secret set up during the Kennedy Administration that—operating under cover inside the Air Force—is responsible for the research, development, procurement and targeting of America's satellites and other aerial intelligence programs.

The N.R.O. programs are directed by an executive committee, informally known at times as the Ex-Comm, whose official standing members include Mr. Colby, as Director of Central Intelligence, and Dr. Albert C. Hall, now the Assistant Secretary of Defense for intelligence. Other officials also participate in Ex-Comm meetings on a regular but ad hoc basis, including a representative of the National Security Council and James W. Plummer, the current Under Secretary of the Air Force, who also serves as a senior-level official of the National Reconnaissance Office.

A number of sources said that, in addition to the N.R.O. 's responsibility for aerial intelligence, the intelligence bureaucracy also maintains a secret office in the Navy for underwater intelligence reconnaissance programs.

It was this office, some sources said, that initially was responsible for financing the research into the possibility of Soviet submarines suddenly found itself facing in 1968: how to recover a submarine in nearly 17,000 feet of water.

No Competitive Bidding

Because of the secrecy and the need for cover, none of the various contracts awarded by the C.I.A. to the Summit Corporation and its subcontractors involved competitive bidding. Government sources indicated. One official said the Government "paid the minimal overhead fee" for construction of the ship, suggesting that work was done on what is known as a "cost plus" contract, with the Summit Corporation getting a fixed percentage of the total construction costs.

The Glomar Explorer is now undergoing repair in anticipation of a second recovery effort this July in the Pacific. Officials would not say with whom in the Hughes organization the C.I.A. initiated discussions about the Agate project, but they specifically said that Mr. Hughes, now living in seclusion in the Bahamas, was not directly gotten in touch with. The officials also said no contact was initiated with A. D. Wheelon, the president of the Hughes Aircraft Company, who once was involved in the C.I.A.'s satellite reconnaissance programs.

As recounted in a number of intelligence sources, the United States initiated the submarine recovery program only upon realizing that the Soviet Union apparently had not been able to fix the location of its sunken submarine.

After the sinking was confirmed and the location determined, Navy and intelligence officials watched intently as the Russians conducted a wide search for the submarine. 
In the wrong area of the Pacific.

At some point, apparently still in 1968, the Red Russian withdrew their trawlers and stopped the patrols, which indicated that the boat had no idea where the submarine had gone down.

"If the Russians knew where the sub had gone down," one former intelligence official said, "they would have stayed there all the time [on patrol]."

**Ship Photographed**

Although the C.I.A. is known to have taken extensive underwater photographs of the sunken ship, there is apparently some dispute over its classification. It has been established, however, that the vessel, which carries three missile launchers, is in the ballistic missile class.

According to the 1973-74 edition of "Jane's Fighting Ships," a standard reference work, it could contain missiles with ranges of between 350 and 650 miles. Some sources said, however, that modifications to the vessel apparently had blunted the Navy's ability to determine its specific classification.

The Government sources said that Navy engineers initially sought means of merely penetrating into the ship—and not salvaging it—in an effort to obtain access to its code room and equipment, but were unable to develop a feasible concept because it was in such deep water.

The Navy eventually brought the problem to the C.I.A.'s directorate of science and technology, headed by Mr. Carl Duckett. Pentagon had become concerned because senior officials in the Pentagon, one source said, that the military "had gotten no place" in solving the technical problems that prevented recovery of the submarine's codes and equipment.

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And, although Government attorneys warned that no international law barring such salvage attempts, there was extended debate about whether the Russians legally would be justified in attempting to sink the Explorer if they happened to stumble onto or otherwise uncover the operation.

There also was some discussion, one source recalled, of what to do with the bodies of Soviet seamen if any were found aboard the sunken submarine.

Because of that, high officials made elaborate plans for protecting the rights, under the Geneva Convention, of any dead officers and men found aboard the ship.

The Glomar Explorer was equipped with refrigeration capacity for up to 100 bodies, and copies of the relevant Soviet and American burial manuals were taken along. The burial ceremony, when it did take place, sources said, was conducted in both Russian and English and recorded in color by C.I.A. camcorder.

One C.I.A. official said that four of the agency's deep-sea specialists who had returned to Washington after the failure to recover the whole submarine insisted on flying back to the Explorer for the burial ceremonies. Despite the failure, the four men are designated to receive special intelligence awards from the Ford Administration, the official said.

Price of the actual recovery operation, other objections were posed on more practical grounds, sources added. Was it worth the hundreds of millions of dollars involved to learn what kind of equipment was being utilized by the Soviets? Was there any information that would have justified the operation?

All these points were considered, one source said, and it was determined that Operation Jennifer was worth while, even if its chances for complete success were slim.

One former White House aide revealed the surprise inside the Johnson Administration after the Israeli captured some Soviet weapons after the 1967 Arab-Israeli war.

"We spent a lot of time making estimates [on the capabilities of the Soviet weaponry] that turned out not to be very accurate," the former aide noted.

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**N.L.R.B. Case Over Ship**

The union eventually accused Global Marine of violating the National Labor Relations Act by discharging at least 10 mem-

"It was an operation I personally would have endorsed if the cost was right," he added. "I was hot on it."

A former White House aide recalled that in the early nineteen-seventies Jennifer also was considered vital for the then pending United States' negotiations with the Soviet Union on strategic arms limitations talks (SALT).

"We thought that if we could get hold of it [the submarine] and disect it," the former aide said, "we'd have something to use as leverage in these negotiations. The Navy was really hot on it."

Mr. Kissinger and his aides, however, were reliably reported to have been less enthusiastic about the project, although as President Nixon's national security adviser Mr. Kissinger theoretically had the authority to cut it off immediately if he chose to do so.

A former Kissinger aide recalled that "when we first heard of it, we said, 'So what? Frankly,'" he said, "'don't think we cared that much about it.'"

By late 1971 the interna disputes inside the Nixon Administration had been quenched and contracts were authorized for the construction of the Glomar Explorer and the barge.

There is some evidence that the various ship builders and subcontractors were not told the ultimate mission of the vessels, and believed that they were solely involved in a deep-sea mining project for the so-called creative Howard Hughes.

Engineers who served aboard the Glomar Explorer on its first test run in July, 1973, later reported that major renovation projects were begun by Summa Corporation workmen on the hydraulic lifts and the derrick shortly after the ship left port.

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zers of the engineering crew allegedly because they signed cards authorizing the union to represent them. They were dismissed as soon as the Glomar Explorer completed its initial test run at Long Beach, Calif., on Oct. 1, 1973. The issue is still pending before the N.L.R.B., although a tentative finding against Global Marine was made last June.

One clear sign that high officials of Global Marine did know of the Glomar Explorer's true mission came when the company refused to put any of its senior officers on the witness stand during the N.L.R.B. hearings, which were held in Los Angeles in early 1974. The company refused to permit such testimony apparently in fear that attorneys for the union would ask questions about the ship's mission.

In 1973 there were numerous newspaper accounts of the Glomar Explorer that emphasized both its mystery and its potential for revolutionizing deep-sea mining. One such account, published by The Observer in London in October, 1973, told how the Glomar Explorer was beginning to mine minerals on the ocean floor near the coast of Nicaragua. The article linked this venture to the fact that Mr. Hughes and his entourage had taken up residence for some months in 1972 in a hotel at Managua, Nicaragua.

A dispatch in the Washington Post in August, 1973, said that Mr. Hughes had invested $250-million in the project, which was expected to produce 5,000 tons of minerals daily from the ocean floor. The article quoted high officials of the Summa Corporation noting that some of Mr. Hughes's flurries to invest heavily in deep-sea mining ventures unless the Government provided assurances of financial protection in case the United States agreed to an international treaty—now being debated—that would limit or ban free exploitation of the ocean bottom. A United Nations conference on the law of the sea resumed deliberations on that issue and others March 17 at Geneva.

In July, 1974, Hughes Corporation officials were quoted by The Philadelphia Inquirer as saying that the Glomar Explorer was "systems testing" in the Pacific Ocean. The tests were scheduled to be completed by the end of the year, officials said.

In fact, the salvage vessel had begun its submarine salvage efforts in the Pacific Ocean in June, the Government sources said. The precise date of the operation's failure could not be learned, but on Aug. 17, 1974, the Honolulu Advertiser reported the Glomar Explorer's surprise visit to Honolulu.

The Hawaiian newspaper accounts emphasized the secrecy that surrounded the vessel, describing it as a "mystery ship." The Glomar Explorer remained in port near Honolulu for about two weeks, disappeared for a week, reappeared for four days, and then left in early September, according to the newspaper.

Ironically, its visit prompted an official investigation by state officials into the ownership of mineral rights in offshore Hawaiian waters. According to one member of the crew, the Glomar Explorer did accomplish some mining of minerals in the waters off Hawaii during its Pacific cruise.

The crew member, who was reluctant to permit his name to be used, also insisted during a brief telephone interview that he and his colleagues knew nothing of an attempted submarine salvage effort.

Since its failure last summer, the Glomar Explorer has been anchored near Long Beach. Its delay in resuming mining operations has added to the vessel's public mystery, since many shipping experts have found it extremely unusual that such a costly ship would not be immediately put to work.

Questions Raised

A number of Government sources said they believed that the role of the Hughes Corporation in the Jennifer operation as well as the company's unusual involvement in many of the Government's most sensitive intelligence missions raised fundamental questions.

Throughout the Watergate inquiry, these sources noted that the so-called Hughes connection—revolving around the fact that E. Howard Hunt, convicted in the Watergate burglary, was working for a public relations firm doing work for Mr. Hughes at the time of the Watergate break-in in 1972—was never publicly explored.

Similarly, questions were raised about the burglary last June at the Hughes headquarters in Los Angeles. There were reliable reports that the thieves sought to blackmail the Hughes organization and, apparently, the C.I.A. and other Government agencies, by offering to return the stolen documents detailing the submarine and other secret operations in return for $1-million.

Intelligence officials, in interviews here, confirmed that pay-off discussions were seriously initiated.

A county grand jury began hearings evidence into the burglary and alleged blackmail attempt on Feb. 13, in a proceeding marked by extremely tight security.
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