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POSSIBLE SIGNIFICANCE OF RECENT SIGHTINGS OF SUBMARINES
IN US COASTAL WATERS

Numerous recent sightings of submarines, ostensibly Soviet, in the coastal waters adjoining the US may indicate more than mere reconnaissance interest by the intruders. Although it might normally be expected that Soviet submarines of long range would venture to the vicinity of the Atlantic coast of the US for reconnaissance and training purposes, there is need, nevertheless, to consider the possibility that other specific and farsighted Soviet objectives may underlie these sightings.

It is generally recognized that enemy submarines could effectively attack US coastal industrial areas on both the Atlantic and Pacific sides with ballistic and air-borne missiles of 500-600 mile range launched from positions several hundred miles offshore. The Soviets are believed to possess long-range missile launching submarines. For guidance of these missiles, the Soviets might plan to rely ultimately upon homing devices clandestinely placed at the selected targets. On the other hand, ballistic missiles require that accurate relative positions of the launch point and target be available at the time of launching. Space limitations point toward the ballistic missile as more suitable for submarine launching. Since the risk of detection in the placement of homing devices and in the transmittal of messages of instruction is rather great, we believe the Soviets would exploit other promising methods of guidance control to insure accurate targeting and maximum damage.

A routine determination of position at sea by the usual methods of celestial navigation and observing the sun gives a value correct to approximately one mile. When weather conditions are favorable so that observations can be repeated, the error might be half a mile or less. On the other hand, if observations are hurried, as would be the case for a submarine surfacing just prior to launching a missile, the probable error in position might be several miles. It is evident that in any projection of war plans for submarine attack against the US with ballistic missiles, the destruction of targets would be greatest if the positions of the Soviet submarines were accurately known. In some manner, the Soviets would have to solve this positioning problem at sea, to have an attack potential for achieving the maximum damage to US targets.

There is evidence in current open literature that the Soviets are fully aware of a need for greater accuracy in determining sea positions. Actually it has largely been under the stimulus of accuracy considerations

for navy-launched IRBM's that attention has lately been focused on this problem in the US. The probable error of one mile does not bother the navigator on a merchant ship far from land, but it does affect significantly the planning of weapons systems where the greatest damage must result from a single shot at long range.

The following analysis presupposes a Soviet decision to rely upon the ballistic missile attack against the US with submarines, in the event of war. There is presented a program briefly of what the Soviets may currently be doing to improve their positioning capabilities over the North American continental shelf at places selected as potential missile launching positions.

It is believed to be technically possible within the limits of current practice to construct a mechanism enclosed within a shell, for which the following would be true:

1. It would be dropped, ejected, or anchored into the sediments of the shallow sea bottom in depths up to 600 feet and where it would not drift under the influence of prevailing ocean currents.
2. The sealed outer shell would provide a protective coating against corrosion, so that an operable life of several years is assured the inner mechanism.
3. The inner mechanism itself is a sensing system, capable of identifying a coded sound signal from a friendly ship. Upon receipt of the coded signal, the mechanism would produce a sound signal of predetermined frequency, strength, and duration.

It is possible that the Soviets have already developed such "submerged position indicators" (SPI), for ultimate possible use in spotting the positions of submarines several hundred miles offshore from selected US targets. Let us suppose that it is the prime objective of the recently sighted submarines to lay these SPI devices and then determine and test their locations. After dropping one, the submarine would surface and determine its position by celestial navigation. The submarine then cruises about, sends out the coded signal and gets the directional sound signal back from SPI which enables the submarine again to surface immediately over it. The multiplicity of determinations of position thus possible would afford a very accurate astronomical determination of the coordinates of that particular SPI. Months later, back in the USSR, the astro-coordinates could be computed into geodetic coordinates on the same geodetic system as the target whose position is already well known from US maps. Subsequent cruises by other submarines could re-establish the coordinates formerly ascertained, and thus check on any possible drift. Also the continued operability of the forty or

fifty devices of this sort which might be laid could be checked from time to time.

In the event of war, the submarines would take up positions for missile launching above their assigned SPI's, thus reducing to the very minimum the uncertainty associated with their positions at sea.

Should such a program be under consideration by the Soviets today, one or two of the devices may have already been set and tested. If there appears to be validity in the idea set forth herein, appropriate components of the Military Services might wish to consider methods by which the location of such devices could be determined -- for example, by watching for recurrent appearances of unidentified submarines in approximately the same position at sea, by being alert to unique signals in the vicinity of unidentified submarines, and by surveillance of Soviet technical literature for indications of particular interest in subjects that might be pertinent to this activity and its further development.

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