

An Experience in Submarine Psychiatry

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The psychiatric experience of a medical officer on two submerged Polaris submarine patrols, each lasting two months, is presented. One psychiatric emergency—an acute paranoid schizophrenic reaction—was managed, and some minor anxiety reactions and depressions were treated. The author suggests the nature of the submarine's psychological atmosphere by means of a brief discussion of the submarine as a physical entity, the patrol cycle, and the procedures of personnel selection and training.

THE MERE MENTION of prolonged submerged patrols tends to generate excited response from the general public. The psychological and psychiatric aspects of such patrols are of particular interest. Beyond being a matter of curiosity, this subject is becoming increasingly important as ever more men are serving in our growing fleet of Polaris submarines.

This report is based on a year-long tour of duty in one of the crews of a fleet ballistic missile submarine (FBM). Serving as medical officer on two cycles of "patrol" and "off-crew training" provided the author an opportunity for observing reactions to long "deterrent patrols"; it also presented the problem of treating an acute psychosis which developed on patrol. After reviewing stresses associated with these patrols, I will discuss psychiatric problems and treatment facilities on FBMs.

Background

The psychological and psychiatric prob-

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lems seen on these patrols develop within a distinctive physical and organizational setting. This setting is defined by the design of the FBMs, the "two-crew concept" of operation, and the selection and training of personnel. Scrutiny of these factors reveals little reason to fear claustrophobia, sensory deprivation reactions, or a "madman pressing the button"—however much such thoughts predominate in speculation and fantasy about this subject.

The Polaris fleet is rapidly approaching its projected full strength of 41 FBMs—also called SSBNs (submarine, ballistic missile carrying, nuclear). Each nuclear-powered vessel carries 16 missiles with the mission of acting as a deterrent to nuclear attack on the U. S. by patrolling certain areas undetected, ready within minutes to launch its missiles at predetermined targets. No individual on the submarine can initiate launching without the aid of others. The combined efforts of many men in several different areas of the submarine are needed to bring the various systems to readiness for a launching. There is a set procedure for verifying an order to fire a missile which involves the captain and two other officers. All on board are impressed with the terrible destructiveness of these weapons.

Four classes of SSBNs have evolved, reflecting improved "states of the art" as technological advances developed at the time of their construction. The basic design of all is the same: an elongated forward portion (of three levels) tapering to the after portion (two levels). All four classes are about 400 feet in length, with operations and habitability areas forward and engineering spaces aft. Despite great density of machinery and equipment, there is at least 6 feet 4 inches from deck to overhead throughout, and one gets a sense of spaciousness.

Every FBM has two complete crews of 12-15 officers and 100-130 enlisted men. Each follows the same operational cycle of roughly 24 weeks. After a crew finishes its post-patrol leave period, it has an intensive training period (six weeks) using trainers and self-taught courses in its home port. The following week is for completing final details prior to the crew's flight to an advance replenishment base in time to meet the returning submarine. The fresh crew relieves the returning crew during the first four days after the submarine gets in; the fresh crew then takes the ship to refit it for patrol. After refit, there is the patrol of about 60 days during which the submarine is continuously submerged. During the ensuing training period, there will be a turnover of a certain portion of the crew. This provides experienced personnel for other assignments and gives time for those reporting aboard to be incorporated into the crew before the "on-crew cycle" of refit and patrol.

Submarine personnel constitute an elite group: they have met rigorous physical and mental standards, have undergone special training, and receive additional pay for hazardous duty. All submariners are volunteers, although this does not mean that all are as highly motivated for submarine duty as that word might imply. Some volunteer more from a desire to leave their present command than from a desire to be on a submarine. When the demand for personnel is great, it may be filled by taking those who indicate that such duty is their sixth choice (out of six). However, the principle of a volunteer service, along with the screening of submarine school, essentially guarantees that no one having a great antipathy to being on a submarine will be found on one.

Some FBM personnel come directly from training facilities and some from other submarine duty. All submariners have had eight weeks (enlisted) or six months (officer) of submarine training prior to reporting to a boat for duty. (Special programs may add as much as a year of further training.) Basic submarine training includes some conventional and some unique physical and psychological screening. Pressure testing and escape tank training are unique. Trainees have to equalize their middle ears to pres-

sure increasing to 50 psi in a chamber which is packed like a subway and has the atmosphere of a steam bath. Training for "Steinke Hood ascent" (the current method of escape from a disabled sub) starts in a small chamber with six men and an instructor. The chamber is pressurized and filled with water to shoulder level; the hood, a helmeted life vest, is pulled over a man's head; he then pulls himself through a submerged opening into the tank and ascends 50 feet constantly shouting "ho, ho, ho" (to ensure proper exhaling and to inform supervisory personnel that all is well).

Lt. Cdr. J. C. Rivera, MC, USN, has reviewed drop-outs from enlisted submarine training. Of all men reporting in recent years, roughly 15 percent have been dropped and about half of these (5-11 percent) have been dropped for medical reasons. Thirty-five to 40 percent of the medical drop-outs are for psychiatric reasons or for tank/pressure failure. According to Rivera:

most of the cases classified as "Escape Training Tank or pressure test failure" could have been screened psychologically or administratively at their previous commands. . . . Some admitted fear of water or confinement, [or] poor motivation for submarine duty. . . . Others had a history of repeated disciplinary action or evidence of emotional instability or immaturity(1).

Psychic Stresses and Countermeasures

The first stress encountered in the on-crew cycle is that of leaving one's family to fly over to relieve the other crew (in Guam; Rota, Spain; or Holy Loch, Scotland). The result of this stress is perhaps felt more by the wives, as it is an impression of medical officers at a home-port hospital (Charleston, S. C.) that a period of increased illness begins when the father leaves for his submarine. (Discussions at the Bureau of Medicine and Surgery indicated that whether the incidence of disease increases or decreases at such times varies with whether the wife is a dependent or dominant type.) News of illness at home readily reaches the submariner during the month of refit; the staff (particularly its medical and clergy members) in the home-port work to mitigate the conditions gen-

erating stress at this time. When the illness is critical, emergency leave for return home is arranged.

The refit period itself can be quite stressful if a complicated, delicate piece of apparatus needs extensive repair and testing in the limited time available before patrol. Men deeply involved in this work sacrifice sleep and shore leave for days on end to "get the job done." The extent of such stress is limited as much as possible by the availability of expert technical assistance and by excellent delivery of parts and even replacements for entire units. Given sufficient evidence of decompensation, a man can be left behind (being replaced by another, when possible). However, there is a strong inclination to assume that a man will recover when the patrol with its less demanding routine begins. Though this assumption is strongly favored by probability, it does not always prove justified.

The officers and men seem to feel there is a primary threat about these long deterrent patrols, and they sense this on the level of being able to pass the time until the end of the patrol. Concern with this issue finds a very direct expression which is almost universal—"counting the days." Some cross off the days on a calendar, but more typically men have signs giving the number of days remaining. My own experience suggests a different emphasis because the midpoint of my first patrol was crucial, relieving a mild depression which began a few days earlier. I later realized the midpoint meant for me that "I only have to do what I have already done," and I felt that would not present a problem which I had not already successfully met.

Passing the time is accomplished with the aid of a broad program of activity. Everyone works; most work two four-hour watches daily (e.g., 0800-1200 and 2000-2400), with certain additional work done in off-watch hours. (Other crews have six-hour watches with 12 hours off after standing watch.) Men usually work with members of their departments or divisions (six to 18 men). This work ensures mental occupation and socialization. Drills generate excitement (and anticipation) while—along with inspections—they promote "readiness" and a sense of community.

A most important group of activities is based on qualification programs (to become "submarine qualified" and to be authorized to stand various watches). Officers and men study manuals, teach one another informally, and finally present themselves to certifying boards composed of qualified shipmates. There are formal lectures, some obligatory and some voluntary, departmental lectures, "advancement in rate" lectures, and group study course meetings.

A recreation committee organizes special activities, such as casino nights, run as frequently as every Saturday night. Certain of the men take it upon themselves to be entertainers or to "raise the morale" of their watch section (or of the whole crew), often through highly imaginative joking. There is a different full-length feature film virtually every day; wire service news releases are available, and there is a 1,000-volume library. Lay leaders conduct weekly religious services, and the inevitable card games occur to one extent or another.

The commanding officer is decisive in determining the balance of activities, and I imagine that there may be a fair degree of variation from crew to crew. Some crews may exhibit much simple "hibernation"; my own did not. The food is excellent and a favorite topic of conversation; meals are social events (of differing orders of formality in the wardroom and the crew's mess), and, curiously enough, reducing is a popular activity.

Such activities do succeed in passing the time, although some of the activities—e.g., "qualification," with its pressures—occasionally create other problems. Inactivity per se does not seem to be an important stress (perhaps because of this program of activities); lack of opportunity to work on specific personal problems is a major stress. The other major stress is separation from family, which is almost complete. A man on patrol may receive three short messages from his family, but he cannot send any.

Sexual interest finds expression in several ways. Pin-up pictures are found in almost all areas where permitted, from a few days after the patrol begins until its end. There was a tendency evident after two to three weeks to display pictures of grossly unattractive women (apparently on a sort of

"sour grapes" rationale). There seemed to be a low incidence of obscene literature. Sexual activity was a frequent topic of conversation. This topic, and vulgar language as well, seemed to me to reach a peak toward the middle of the eight-week patrol. It has been stated that "proper command attention can do much to increase morale and decrease this sort of intellectual abuse." Although my experience is not sufficient for me to be definite, I doubt that such talk always indicates low morale and I suspect that it may, at times, be of value in reducing tension and assuring men that they have feelings which are normal in such a situation. At any rate, this kind of talk seemed to me to be on a different level than that indicating anticipation of resuming marital relations; beginning several weeks before the end of the patrol the latter appeared with increasing frequency. There was a noticeable increase in general physical contact—back-slapping, accidental collisions, etc.—in the last seven to ten days of the patrol. This seemed in effect an expression of farewell to the community, which was shortly to dissolve with the start of the off-crew period. The last week or so was also the time in which what the men call "channel fever" appears. This is a state of excitement, occasionally with absent-mindedness, which is caused by anticipation of return to the green earth.

Only one man presented with a sexual problem in the course of two patrols. Two to three weeks after the beginning of a patrol a 25-year-old man complained that he was troubled by the meaning of his desire to masturbate. (This was a part of his concern about his wife's accusation that he was hypersexual.)

The inevitable personality conflicts and the proximity enforced by working, messing, and berthing conditions generated some resentment and there were a few altercations. I think the well-ingrained military sense of hierarchy served to hold these down; there was always somewhere else to go and someone who would give a sympathetic hearing to one's complaints. A frequently utilized means of releasing hostility was to have hyperbolic, "joking" insulting matches between individuals or "feuds" between small

groups (e.g., the two groups successively having the same watch station).

The insults and feuds were always accepted as playful behavior and, indeed, often had a morale-raising effect as a form of entertainment mentioned above; however, in some instances the facade was strained and long-lasting bitterness was engendered. Pecking orders were established in various groups although there were a few recognizable scapegoats, some apparently considerably enjoying the village idiot role. These people were habitually the butts of jokes. Self-censorship, or, in its rare failure, group censorship prevented these jokes from becoming offensive, and the butts of the jokes in almost all cases withstood the onslaught very well.

A small-scale study of the men's dreams during an off-crew period and the first half of the patrol failed to reveal any general pattern of change in the nature or frequency of dreams on patrol. An interesting finding was that two men from a group of eight studied had dreams involving death or impotence within the first few days following submergence for a 58-day patrol.

Psychiatric Disorders on Patrol

Five percent of the crew of 125 men and 12 officers were treated for psychological or psychiatric problems of varying degrees. Minor anxiety reactions constituted the most frequent group. At times these reactions presented as distractedness or low-grade anxiety attacks, but more frequently they were manifested by insomnia, headaches, or other somatic concerns. The precipitating situation was usually one in which the man involved was to undertake a major project—e.g., marriage, divorce, or a long-distance move to start at a school—shortly after the patrol ended. As the time for this project drew near the man began to anticipate it, felt frustrated in his desire to start preparing for it, and developed symptoms. In rare instances the anxiety reaction was due to long hours and self-doubt caused by pressure to perform in work or in a qualification program.

Depressive reactions were seen in several instances; anorexia with weight loss was noted in two cases. Unsatisfied dependency

needs in individuals strongly attached to their families seemed to be the common element in the depressions. For the anxiety and depressive reactions the treatment was minor anti-anxiety agents, anti-depressants, and hypnotics, as indicated, along with support.

In the course of two patrols, one incapacitating psychiatric illness occurred. (This of course cannot be interpreted as statistically representative of psychiatric disease on FBM patrols. It is, however, representative of the situational stresses and of certain susceptible individuals.) A chief petty officer had an acute paranoid schizophrenic break after five weeks on his first submerged patrol.

This bright, highly motivated man had reported aboard during the off-crew period preceding the second patrol made by the crew to which I was attached. He was a highly qualified technical specialist with no submarine experience before reporting to submarine school a year and a half earlier; he had spent many of his 17 years in the Navy in instructor duty and other shore activities, and consequently with his family. Although he had had migraine headaches for 12 years, they had been quiescent for the preceding two years. The refit period had been difficult for his department in the manner described previously.

In addition, in his case, there was the problem of integrating himself and the other new men (one-third of the department) with the old hands. Further, he was confused about his role. Was he only to "orient himself" to the workings of his department on the submarine, or was he to follow his preferences? He would have preferred to have taken charge, as he had in similar situations previously. Although the chief was expert on somewhat more than half of the auxiliary equipment, he had not received formal training on the heart of the department's equipment on the submarine. This fact, plus the urgent nature of the department's work, fostered the practice of men bringing problems directly to the departmental officer rather than presenting them first to the chief, according to standard Navy procedures. The department had operational commitments around the clock which the officer attended and which the chief felt he should attend.

(The officer had an uncanny ability, which the chief lacked, of going for days subsisting on cat naps.)

Almost immediately after the start of the patrol the chief's migraine headaches recurred on a daily basis, as he revealed only later. After two to three weeks he was expressing the hope that the headaches would not keep him from doing the job he knew he could do. At the end of the fifth week of the 58-day patrol, erratic behavior and grossly irrational talk were noted. The chief hallucinated voices talking about him and calling him names. A primary delusion was that his departmental officer was out to do him damage, at least "to break him" (from chief to ordinary enlisted man). He was relieved of his watch-standing duties and placed under treatment.

The nature of the treatment was dictated by the facilities on board, by the requirements for the safety of the submarine, the crew, and the man himself, as well as by the preferences of the medical officer. The facilities included an ample supply of phenothiazines, barbiturates, etc., and a straight-jacket, but no sick bay in which a man could be secluded. (There is a 12 x 6-foot medical office where drugs are stored, records are maintained, and minor procedures are performed.)

It would have been possible to use a small room where three men had been berthing, but I thought it would be preferable to disturb the patient's social environment and the crew's routine as little as possible. For the same reason I felt that adequate surveillance of the patient could be maintained without having two men withdrawn from their routine duties to have this as their exclusive assignment. What was done was to have the 15 other chiefs (with whom he berthed) rotate through watches around the clock with him, in addition to standing their usual watches.

Several modes of therapy were used. He was given phenothiazines in doses increased to 600-800 mg. a day and barbiturates in considerable doses, since insomnia and hypnagogic hallucinations were particularly distressing aspects of the disease. He was seen in frequent sessions; these were primarily supportive and ventilatory, with some interpretation being done. His fellow

chiefs moved from a surveillance role (calling the medical officer when the patient requested or when his behavior seemed to merit it) to one of involving him in their activities in a way resembling as closely as possible that prior to his illness.

This treatment continued for three weeks, and the apparent response was gratifying. Shortly before the end of the patrol the chief had tried standing in noisy places to drown out the remnants of the hallucinations. He felt that if he could eliminate these he might escape hospitalization and return to his family when the rest of the crew returned. When the submarine docked he was transferred to the base hospital and from there air-evacuated, via a U. S. military medical facility in Europe, to the Philadelphia Naval Hospital (the Navy's east coast psychiatric center). After several months there, the chief was released for a trial of limited duty (nonsubmarine).

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REFERENCES

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Bore: a person who talks when you wish him to listen.

—AMBROSE BIERCE