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Often the relationship between the pilot and his aircraft is such that the aircraft may be thought of as an extension of the pilot himself during the act of flight. If this pilot accumulates stress in his life with which he can no longer adequately cope, he may engage in self-destructive acts, some of these within the context of his flying activities. The competent pilot practices and acquires skills which help him to deal with the stress of demanding flight situations. However, if this individual exceeds his piloting capabilities, or is already coping with a high stress level to his maximum capacity, the additional stress of a particular flight situation may overload his total coping ability and destruction of self, both psychologically and physically, will occur.

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THE AIRCRAFT AS AN INSTRUMENT OF SELF DESTRUCTION

Douglas Bond writes in *Love and Fear of Flying:*

"Flying has long held a special place in man's thinking. It has been associated with aspiration and freedom from the restrictions of earth or of reality and has had strong religious connotations as well. Deeply rooted in man's mind is the idea that flying is a supernatural achievement . . . A great many of man's ideas and feelings that relate to flying are rooted in legends and beliefs about the sky. The sky has been to man something 'above' him in the figurative sense—the dwelling place of gods who have wielded the elements as tokens of their pleasure and weapons of their displeasure. The sky has held promise and threat, and to most children, it has become almost synonymous with their ideas of heaven. In more modern civilizations the 'good' connotations have prevailed and the sky has been largely a symbol of beneficent hope, but even so, it has held the threat of punishment, particularly as the seat of thunder and lightning, of wind and sun. These elements have been interpreted by every people in a personal way . . . It is into this new world without visible limit, already rich in personal and communal legend and superstition, that the flyer enters, and its special characteristics cannot help but have meaning for his emotional life."[1]

Few pilots would deny that flying holds a unique place in their lives. Many pilots view their flying as an exhilarating experience, as an emotional release which takes them far above the world of "earthly" men. As pilots, they see themselves as a breed apart and tend to think of themselves as being somewhat different from other men in their approach to many aspects of life.

Due to the special nature of flight, as indicated above, pilots tend to feel a closer bond with their aircraft than most people feel with other means of transportation. In addition to being looked upon as a piece of precision machinery, the aircraft is often personified in many respects. In fact, many pilots identify with their aircraft to the extent of feeling "as one" with it during the act of flight. For purposes of the discussion which follows, the authors wish to develop the idea that the aircraft is an extension of the pilot himself during flight. This extension, in the physical and emotional sense, is largely made on the basis of the special experience which flying represents.

Later in this paper, the authors discuss the various stresses leading to self-destructive behavior as they affect the pilot-in-command. A pilot prone to self-destructive behavior, due to a collection of stresses with which he cannot adequately cope, would be likely to indulge in potentially self-destructive acts in his aircraft.

As a means of transportation one could view the aircraft simply as an instrument of self-destruction. In this limited sense, the self-destructive pilot, just as a non-flying individual, would be prone to engage in self-destructive acts in any area of his life. In this context, self-destructive acts related to aviation would have no unique character of their own.

It is the authors' contention that the plane-pilot unit is more than man-operating-machine. To an extent the aircraft's power, abilities, and characteristics become the pilot's, and the aircraft is imbued with or integrated into the personality of the pilot. A self-destructive inclination would threaten the integrity and effective performance of the plane-pilot unit. Just as the aircraft is seen as an extension of the individual self in the act of flight, the result of self-destructive acts performed while flying is that the aircraft and pilot, as one, suffer the same fate.

Rather than limiting the discussion to obvious acts of suicide, e.g., diving straight into the ground, equal or greater emphasis is placed on acts which are hazardous such as flying while intoxicated, flying aircraft which demand skill

beyond one's capabilities, or taking chances with weather. These and other subtle "errors" such as flying an aircraft which has been poorly maintained, taking off with barely enough fuel, or neglecting important items on the pre-flight check all may fall into the vast category of sub-intentional self-destructive behavior.

Dr. Norman Tabachnick in 1970 expounded his definition for self-destruction and the place of cultural values in that definition. He began by constructing a definition which deals with the basic physiological aspects—"Any activity over which an individual has some (actual or potential) volitional control which moves him in the direction of an earlier physical death than would otherwise occur, is designated self-destructive."[3] The term "volitional" carries the implication that the individual has the option to avoid or change the behavior so that it will no longer be self-destructive.

Dr. Tabachnick further states: "This leads us into the area of values and the issue of the hierarchical placement of values. Most people consider life 'valuable', but there are other aspects of the human condition that are also 'valuable'. Each individual (whether he is consciously aware of this structuring or not) has placed his values in rank order. Thus, many of us come to realize that there are certain values which are as important or more important than life. If someone acts so as to implement those values at the apparent expense of self-preservation, we are not justified (through identifying him with ourselves) in calling him self-destructive."

If this suggests a false positive from the basic definition, there are likewise false negatives to be taken into account. It becomes apparent that the original definition would fail to include many activities which are not always physically self-destructive. Examples might include the avoidance of close personal relationships, some cases of prostitution and the various forms of criminality, the refusals of advancement opportunities in business, etc. Such activities are not clearly or inevitably associated with decreased life expectancy, yet to the "individuals who perceive these activities to be self-destructive—regardless of their values to the participants—they represent modes of acting, living, and feeling which are as profoundly self-destructive as the actual loss of life."

Obviously each person harbors his own set of values. While certain values enjoy the consensual acceptance of large groups of individuals, we must point out that there is danger of perpetuating an egocentric or ethnocentric error if one deems one's personal preferences and values to have some general meaning to everyone. On occasion it is just such an attitude which allows one to label all activities self-destructive which move in a direction contrary to one's own values. In evaluating any act as to self-destructive intention, it is necessary to know everything possible of the positive and negative values which are associated with it to the individual in the culture.

One's values are a significant part of the psychic environment within which one operates. The import of stress fluctuates in intensity against this background determined partly as a function of it. The word "stress" has long been used by laymen in a variety of ways to describe many phenomena. Stress has been used relative to forces exerted, to signify emphasis, to express the internal resistance of an elastic body to pull, or to designate tension, fatigue or exhaustion. In keeping with other portions of this presentation, the authors want to insure a continued common ground for discussion. Therefore, a working definition of psychological stress is in order. Within the context of this paper, "stress" is a force that requires coping behavior, coping being defined as the successful utilization of the necessary expedients in order to adapt to problems and difficulties.

Psychological stress is any influence or force perceived to threaten a vital goal or need of an individual, for example, the life-threatening situation of a non-instrument trained pilot in instrument conditions. The vital goals or needs of an individual are determined by his psychosocial development. This covers all of the input of variables supplied by his psychosocial environment from the time of conception to the time of his demise.

The reactions to stress are attempts to defend the personality against disorganization. These same stress reactions can break down previously healthy adjustments and patterns of behavior, or they may enable an individual to advance to a healthier level of adaptation. If the non-instrument rated pilot has not become competent enough to overcome the stress of actual instru-

ıent flight demands, this obviously would lend self to disorganization and a breakdown in ɔping behavior. On the other hand, if the indiidual has acquired instrument flight proficieniies and finds himself in the stress of instrument ɔnditions, this establishes a healthy level of daptation.

Successful or unsuccessful reactions to stress re dependent largely on personality developıent, social structure, and experience level. One ınnot predict with any degree of certainty a ɔecific reaction of any individual unless a great eal is known about the predisposing psychoɔcial environment. Individuals may sustain ɜvere stress such as isolation, death of a signifiınt other, and serious territory loss without a reakdown of adaptive capacities (even when it impossible to repair or replace the damage or ıss, for example, flood loss victims). Conɜrsely, there are frequent examples of total disıtegration of adaptive capacities in the face of ılatively minor stresses. These failures most ften occur when the individual has accumulated resses that add up to greater than his maximum ɔopable" stress load, much as an aircraft's perɔrmance would suffer by being flown over gross ıading capacity.

Since psychic equilibrium involves a balance ɜtween an individual's defenses and adjustment echanisms and the stress to which he is exposed, follows that any unusual stress or any gross crease in stress that disturbs a person's equiɔrium is likely to result in some emotional ıd/or behavioral change toward psychological ɔnormality, even in the individual who shows normal adaptation during circumstances of utine stress. This change from coping beıvior to a disturbance in psychic equilibrium n potentiate self-destructive behavior.

The senior author has developed the Psychocial Reconstruction Inventory[2] which evaluates e key elements of an accident victim's life infar as may be determined retrospectively. ıe derived information presents a history of e psychosocial development of the individual .d any pre-accident deterioration. An abstract om the author's files is provided below as an ample of a stress pattern leading to psychocial deterioration and self-destructive behavior which the victim's flying and aircraft are key ɜments.

Case No. 720405: The pilot, a 33-year-old professional pilot, departed the airport just prior to midnight. Approximately four hours later, the pilot reported to a flight service station that he had fallen asleep, was lost, and requested vectors to any airport. The wording of his messages indicated helplessness and hopelessness and he was careful to identify himself. The pilot later reported fuel exhaustion and on last contact, the FAA fixed his position many miles out over the ocean. The pilot and aircraft were not recovered in the ensuing search.

The Psychosocial Reconstruction Inventory revealed that the victim, an only child, had spent his formative years in a relatively sheltered environment. The constant input of his parents never permitted the pilot to make his own decisions and did not allow him to develop sufficient self-esteem. It appears in the full picture of this individual that this hindered his development as an independent identity.

The pilot's mother was the dominant personality in the family. With the pilot's father, she indulged in somewhat unusual sexual practices during the pilot's early years. This apparently created much anxiety during the pilot's Oedipal period, did not permit an acceptable self-identification, and must of necessity have colored his sexual behavior. The pilot married at about age 25. The first two years of the marriage were described by the wife as ideal. However, she indicated that the pilot possessed some atypical attitudes towards sexual behavior.

After two years of marriage, the pilot entered military service for two years, serving as a pilot in combat. Upon return his behavioral pattern was quite different from his preservice behavior. His drinking became excessive, his extramarital affairs became numerous, and his behavior was reported to have become extremely impetuous. As a substitute for the failing interpersonal relationships, the pilot routinely began bringing gifts to his wife and children.

During the pilot's military service, his wife resided at his parents' home in a small town. She had apparently not felt accepted by his

parents and had formed a liaison with another serviceman's wife, an important factor in the change in the pilot's attitude toward his wife after his return from the service. With this and a number of other marital difficulties, much resentment developed. The pilot began neglecting some of his responsibilities as a husband and provider and a separation ensued which lasted many months.

After discharge from the service, the pilot held several positions from which he was fired due to his inability to handle responsibility and lack of respect for authority. His financial dealings were precarious and in the three years prior to his death, two aircraft and an expensive automobile had been repossessed. Minor skirmishes with the law had occurred when he attempted to prevent repossession of the vehicles. However, at the time of the last flight, he was employed as a corporate representative and was in charge of two corporate aircraft, a twin and a well-equipped single-engine aircraft. This employment was in spite of the fact that the subject had been involved in four aircraft accidents, two of them involving the corporate twin.

The pilot and his wife had been separated two years but were attempting a reconciliation at the time of the last "accident." Although his behavior at this time was basically reminiscent of his pre-service behavior, there had been several incidents of wife-beating and also an automobile accident in the two-week period prior to the last flight.

In order to maintain his psychic equilibrium during periods of stress, the pilot had copied a coping mechanism from his mother's behavior which was in reality severely self-destructive: he would simply fall asleep. This had occurred while driving, while flying and at other times when an immediate adaptation to stress was necessary.

On the morning of the final flight, contrary to his usual behavior, he did not shower and he "dilly-dallied" about the house, telling his wife that he wanted to stay with the family. He left the house about midafternoon for a city a few hundred miles away to represent his corporation in a business transaction. He called his wife at 2200 and told her that he would leave for home at midnight. He did not file a flight plan, but did top his tanks prior to the flight which ensued.

In summary of this case, the pilot was characterized by inappropriate behavioral patterns which resulted from his childhood and adolescent experiences. His impulsivity in attempting to harm his wife and his repetitive self-destructive behavior are further indications that he disliked discipline, abhorred routine and expressed a strong desire to be his own boss. Materialistic aspects of his life were paramount and showed much self-destructive ideation (e.g., placing himself hopelessly in debt). Recent behavior and experiences suggest a situation of great cumulative stress for the pilot.

The questions must be asked:

(1) Why did the pilot fail to turn on the aircraft's transponder while over the ocean which would have facilitated his location by rescuers—perhaps he did not want to be rescued?

(2) Would the pilot not have had to change tanks after he overflew his home base, implying intention of destruction of Self? (3) Why was no evidence of wreckage found in the extensive search of the area and beaches immediately after reported ditching?

Utilizing the information that could be gathered with reference to self-destructive behavior, it appears that this man was operating at the lethal end of the continuum of self-destructive behavior, which ranges from maximum self-preservation at one extreme and intentional suicide at the other.

Considering the possibility that the pilot could have faked a ditching and made his way to an unknown airport, this case would still fall into the classification of severe self-destructive behavior, interpreted as an attempt to destroy his previous Self—psychological, rather than physical, self-destruction. The pilot's ideation in this case would be to start over in a new identity. This would, however, be doomed to failure unless the man were able to rid himself of his myth of invulnerability and learn to cope with stress in a more satisfactory manner. The retrospective conclusion in this case is that the mode of death, if in reality the pilot is dead, was intentional suicide. If he is not dead, the 'killing' of his previous Self was

also intentional. It is apparent in the preceding example that the loading of stress factors as a function of the pilot's ability to cope predestined him to destruction of self physically and/or psychologically.

Attempts have been made to describe the self-estructive individual, the "unsafe" individual ften referred to as an accident repeater.[4] Although at present there is no absolute and conrete identification, this type of person is usually istinguished by a history of aggressiveness, npulsiveness, and intolerance. He also tends to e easily frustrated and to show an inability to ıake adequate decisions or choices, the contrary ɔ what is observed as a general rule in accident-ree groups. In the group considered safe, the ıme behavioral dynamics may be present, in ertain members but these exercise satisfactory ontrol. The accident repeaters tend to be indiiduals who are not well-adjusted to life situaions and are unable to cope with stress.

The individual who habitually behaves in an nsafe and potentially self-destructive manner ill usually have strong attributes in other areas s well: strong, unresolved anger toward himself r others, a gross inability to receive recognition ırough appropriate channels; excessive feelings f guilt and need for punishment; and abormally low feelings of self-esteem and self orth.

Every fact learned about aircraft accident ıusation strengthens the conviction that much f this problem is deeply imbedded in behavioral nd social customs, practices and attitudes.

An individual will become competent to varyıg degree in adapting to situational stress. hose with greater competence will adapt more ısily with less deleterious results than those with less competence. By competence is meant the ability to adapt to almost any situation that may arise. Pilots are taught and are expected to remain efficient in their utilization of those procedures that are designed to thwart self-destruction.

Most people live without a sense of imminent danger. They assume a myth of invulnerability in which it is usually felt that nothing seriously detrimental is going to happen to them. At times, this illusion has the useful function of protecting the individual from limiting his life activities and from living in a constant state of terror of the real dangers that life holds. Excessive awareness of a threatening danger can contribute to progressive psychosocial deterioration and maladaptation in the fact of potentially stressful everyday situations.

Instrument flying techniques, emergency landings, stall recovery, and other maneuvers are skills that help to keep the pilot alive. It follows that the more experience, training, and competence an individual has to utilize in adapting to increased stress demand, the more successful he will be in dealing with demanding flight situations. More important to the individual than this increased proficiency, is a deeper understanding of his own capabilities and limitations. He must develop a greater appreciation of the full reality of the world of risk during the process of placing less reliance on the myth of invulnerability. This understanding, of course, assumes good common sense and emotional stability and does not necessarily result from flying experience. Even the "competent" individual may fail in adaptation if a stress event overloads his total coping capacity. Self-destruction then can become almost inevitable.

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