

# *What Is The Truth About Drunken Flying?*

AOPA investigation reveals that FAA's catch-all sampling and arbitrary standards may not give a true picture of the situation.

Divergence of CAB and FAA figures adds to the confusion

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EDITOR'S NOTE: In AOPA's opinion, there long has been a need for an exhaustive and objective study of the consumption of alcohol by pilots and of the effect such drinking may have on their flying ability. There have been interesting medical reports on the subject, and lurid news and feature stories in the press and on television, but there has been no overall study of the situation nor an attempt to place the problem, such as it is, in its proper perspective. General aviation as a whole has been the focal point of the criticism brought on by the actions of a few flyers—an infinitesimal percentage of the active pilot population of this country.

We decided we should do some-

thing to get the facts, as best they could be determined, before the public. This report by Duane E. Best is the result of our efforts. It represents the findings of an intensive investigation, which included interviews with dozens of persons and the study and analysis of voluminous files.

Mr. Best was selected by The PILOT to do the job because of his past record of meticulous research and his unique ability to analyze the products of his research. He is a general aviation pilot and an airline flight engineer-pilot and a free-lance writer who is no stranger to readers of The PILOT. Backing up his civilian flying experience are about 10 years in the U.S. Air Force. (He was the pilot of a KC-135 jet tanker at the

time he left the military service.) When Mr. Best was given this assignment several months ago, our instructions were that he get the facts as best he could from available records and knowledgeable individuals, and write an unbiased report of his findings.

Since it is our branch of the industry that is involved, some may question our ability to remain objective, but we wanted to know the facts whether we were hurt or not. We believe that Mr. Best has approached the subject with an open mind and has carried out our directive ("no whitewash!") in this article, and in the second one which will appear in The PILOT next month. Be sure and watch for it.

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United Press International came up with a Christmas present for general aviation last season that was about as welcome as the proverbial bundle of switches. It was a news story, released on Dec. 22, that stated: "Drunk flying accounts for 30% of the fatalities among lightplane pilots, mostly because they treat their planes like their cars, a Federal Aviation Agency official said today."

Scare headlines like "Flying Blind" and "Drunk Flying's Terrible Toll" appeared in newspapers all across the country. UPI said that Dr. Stanley R. Mohler (AOPA 167639) of FAA's Office

of Aviation Medicine estimated that drinking and flying kills about 165 pilots a year.

These figures are in stark contrast to those released by the Civil Aeronautics Board, which has the legal responsibility for such causal determinations. CAB says that in 1965 there were 38 fatalities in which ingested ethyl alcohol was a factor, based on 504 fatal accidents.

The furor created was immediate. Among a flood of letters to AOPA was one from George F. Gardner (AOPA 294809) of Carlisle, Pa., who wrote: "Quite frankly I have no way of knowing whom to believe, the way everyone

tosses statistics about to suit his own purpose, but I would like to know, and I feel that we all would be better for it. . . ."

Drinking and flying can be deadly serious for that micro-minority who persist in their indulgence or for those who just never get the message. However, it was never before considered a serious problem by knowledgeable individuals in the aviation industry or by those in related areas of government. Yet from an industry public relations standpoint the problem is one of major importance and extreme sensitivity. Why?

Airplane crashes and their causes

rank high as news material. Most reporters will be quick to exploit every opportunity for a "beat." Continual pressure of deadlines coupled with limited knowledge of general aviation therefore may be detrimental to accuracy.

Robert F. Buckhorn, who wrote the controversial Christmas story, is UPI's transportation editor in Washington, D.C. He offered his original notes as proof that he had only written the story as told by FAA. His contact was with Dr. Mohler, chief of the Aeromedical Applications Division.

A week after the story appeared, Dr. Mohler, flanked by Federal Air Surgeon Dr. Peter V. Siegel (AOPA 125366) and members of their staff, held an explanatory conference with representatives of Washington-based aviation organizations to amplify their views. What followed was a frank and lively two-hour discussion. (Later, Buckhorn wondered why he hadn't been invited.)

Dr. Siegel emphasized that FAA's figures had nothing to do with CAB's causal determinations involving alcohol. "The alcohol is present, yet alcohol may or may not have been a contributing factor to the accident," he explained. "I think the problem we have is to get education and appreciation in the minds of pilots about what alcohol does to people who fly airplanes."

From the discussion it quickly became apparent that the blood-alcohol levels included in the FAA statistics went lower than what a 160-pound man might expect after consuming one-fourth of a bottle of beer. Max Karant (AOPA 18), AOPA's senior vice president, questioned the wisdom of publicly releasing such figures to an audience that has no way of putting this material in any kind of perspective.

Dr. Mohler defended the administration's view. He said that, on the average, two fatalities are involved for each fatal accident and those who might ride with a drinking pilot were entitled to be made aware of the risks.

"What we feel is that the individuals who didn't get the message that alcohol and flying don't mix sieve themselves out of the system by virtue of the impairment of their airmanship," he said. "We can show that one drink will begin to cause deterioration in vision; in reflex response; in coordination and in judgment, and will begin to influence the individual. . . ."

Interjected Karant, "I gather that the reason we are being tarred and feathered in general aviation is that the mere presence of this automatically says. . . ."

Said Dr. Mohler, "Nope."

"Well that is what is being construed by the public!" exclaimed Karant.

Dr. Mohler pointed out that he emphasized the fact that "the great majority of general aviation pilots are mature and dependable individuals, and operate their aircraft safely." This exact statement, he noted, was contained in his paper on impairment of airmanship by alcohol, which was part of the material furnished to UPI's Buckhorn.

Any doubt of the potential harm that general aviation can suffer from out of focus news stories was dispelled by a column in the New York Journal of Commerce dated Jan. 16, 1967. Under Alexander Picone's by-line, the "Insurance Today" column was headlined: "The Drinking Light-Plane Pilot Shows Signs of Becoming Nation's New Problem."

Columnist Picone wrote:

"Not many are aware that the private airplane and some of the kooks who fly them are causing a new brand of trouble and creating new problems for the community and the brave underwriters who provide insurance coverage for the birdmen.

"We know of the drunken automobile driver. Would you believe the drunken airplane pilot?"

Picone continued with a slightly rewritten version of Buckhorn's UPI story. Drawing his conclusions, Picone said:

"If you are an insurer which provides the private plane pilot with insurance protection, you must insist that he fly with discipline.

"Government authorities perhaps, need to enact and enforce more stringent licensing laws applicable to the private plane with emphasis on periodical pilot examination. . . . The problem of the lightplane should be tackled now before it grows into an automobile traffic-type fiasco."

A major block to sound interpretation of statistics on alcohol consumption and resultant blood-alcohol levels stems from confusion about methods for expressing the alcohol content of blood. According to the National Safety Council's Committee on Alcohol and Drugs, there are three acceptable methods: (1) Grams percent or just percent (grams of alcohol per 100 milliliters of blood); (2) milligrams of alcohol per cubic centimeter of blood; (3) milligrams percent (milligrams of alcohol per 100 milliliters of blood). Thus, the same measurement may be expressed as (1) 0.15%; (2) 1.5 mg/cc; or (3) 150 mg%.

Forty states have chemical test laws applicable to cases of driving an auto while influenced by alcohol. Prima facie evidence of intoxication in 36 states is a blood-alcohol level of 0.15% (150 mg%), while four states use 0.10% (100 mg%). Several European countries have laws which set the intoxication level as low as 0.05% (50 mg%).

Many doctors and medical laboratories prefer the milligrams percent method of expressing blood-alcohol results because it eliminates the pesky decimal point. But when 15 mg%—a figure often used because it is (1) roughly equal to the blood-alcohol level after the intake of an average highball and (2) roughly equal to the amount per hour that a human body can rid itself of alcohol—is transposed to 0.015% the decimal is often misplaced or misread as 0.15%. The misplaced decimal was found in conversation, in written articles and even on a paper

outlining stages of alcoholic influence which was furnished by CAB.

To establish some frame of reference for relating amounts of consumed alcohol to blood-alcohol levels, a study by the police department of Grand Rapids, Mich., is commonly quoted. With one drink equaling one volume ounce of 100 proof liquor or one 12-ounce bottle of beer, a 160-pound man will reach slightly over 150 mg% blood-alcohol level after consuming eight drinks over a two-hour period. A 200-pound man will reach the same level with 10 drinks, while a 120-pound person will need only six drinks.

Any given blood-alcohol level depends on body weight, quantity of ethyl alcohol consumed and time period since ingestion. Other factors, including age and average drinking habits, must be known before one can determine an individual's tolerance to intoxication at a specific blood-alcohol level. Tolerances vary, sometimes quite widely (the reason for the overlap shown on the vertical, color-coded section of Chart 3).

A survey of auto fatalities conducted by the University of Indiana Department of Police Administration concluded that blood-alcohol levels over 40 mg% are "definitely associated with increased accident involvement." The relative probability of causing an accident "increases to six times that of a no-alcohol level at 100 mg% blood-alcohol, then soars to 25 times greater at 150 mg%."

The number of pilot's toxicology investigations is gradually increasing each year, FAA says, due to improved communication and data gathering procedures. They denied any attempt to emphasize to their army of medical examiners a special interest in alcohol, even though there is a school at FAA's Oklahoma City facilities set up to improve the processes by which medical information is gathered following accidents.

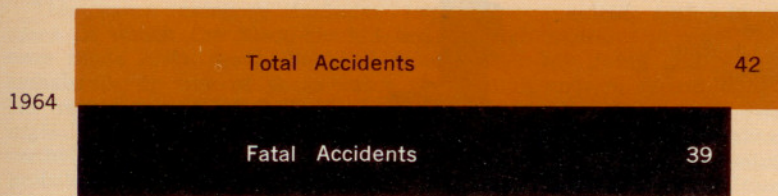
They pointed out that a toxicology investigation, whenever possible, is a routine check for anything toxic that might be revealed, such as carbon monoxide, drugs and, of course, ethyl alcohol (technically known as ethanol).

The disturbing fact pointed out by the FAA doctors is that the pilots who had positive blood-alcohol measurements remained a nearly constant percentage of the pilots on whom toxicology investigations were performed. FAA insists that they have a valid statistical sampling. Over the three-year period covered by Chart 2 they have obtained toxicology investigations on 666 pilots involved in 1,530 fatal accidents. Of those, 243 had "measurable" blood-alcohol. This is more than enough, the FAA feels, to apply their percentages to the whole of those involved in fatal accidents. This is how Dr. Mohler arrived at his "killing 165 pilots a year" figure.

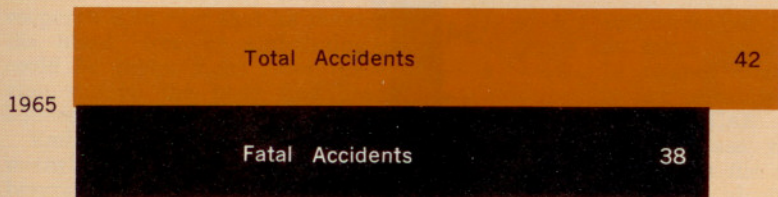
But how valid is the data upon which the FAA doctors base their revolutionary conclusions? Until now, general aviation's basic criticism of the FAA in this matter has been that the public lacks the necessary information to distinguish

CHART 1

Accidents Involving Alcohol  
U.S. General Aviation  
All Operations  
1964-1965



Alcoholic Impairment of Efficiency and Judgment  
Based on 5,069 total accidents, 526 fatal accidents



Alcoholic Impairment of Efficiency and Judgment  
Based on 5,125 total accidents, 504 fatal accidents

Note: Included in total number of accidents for both years reflected are all reportable accidents. These include all mishaps ranging from total aircraft destruction to "fender bender" incidents generally resulting in aircraft damage of \$300 or more.

Source: Civil Aeronautics Board Bureau Of Safety

CHART 2

Summary Of Fatal Accidents (\*\*)

YEAR OF ACCIDENT	1963		1964		1965	
	No.	Percent	No.	Percent	No.	Percent
TOTAL AIRMEN*	378,700		431,041		479,770	
TOTAL FATALITIES	900		980		1,020	
FATAL ACCIDENTS	477		510		543	
PILOTS TOXICOLOGY INVESTIGATION	158	33	215	42	293	54
PILOTS POSITIVE BLOOD ALCOHOL	56	35	82	39	105	36
LESS THAN 50 MG%	12	21.4	23	28.1	45	42.8
50-99 MG%	12	21.4	18	21.9	20	19
100-149 MG%	7	12.5	22	26.8	16	15.3
MORE THAN 150 MG%	25	44.7	19	23.2	24	22.9

(\*) Total airmen measured by current medical certificates. Airmen figures were not included in original FAA data.

(\*\*) Any relationship between these published statistics and alcohol consumed by airmen is believed highly unreliable.

Compiled by Accident Investigation Branch, FAA (AM-120) 12/29/66

between "measurable alcohol" and "ingested alcohol" when such statistics are made available to the press. For that matter, the distinction must be clearly spelled out to pilots as well.

FAA's Office of Aviation Medicine officials must be commended for their cooperation in making their raw data available for this AOPA study. Nevertheless, the finger of suspicion strongly points to many instances of basically erroneous data that surely would have been weeded out had not the "alcohol involved" criteria been divorced completely from the context of accidents in which "alcohol" was found.

What happens when one studies, case by case, the accidents from which FAA statistics were drawn? It is what one might mildly term an eye-opener. Errors of interpretation and lack of controls seem the rule rather than the exception.

There are cases included with measurable amounts below 5 mg%! These amounts may properly be called a trace and well within the parameters which define the magnitude of blood-alcohol test errors. A standard toxicology textbook states: "In some of the usual dichromate alcohol methods one should subtract .5 to 10 mg% from the result, expressed as alcohol."

Many blood-alcohol tests have considerable inaccuracy in the range below 50 mg%. Of over 300 tests used for blood-alcohol, only two types are specific enough for ethanol to measure with reliable accuracy in this lower range. One type (the most specific, though not infallible) is gas chromatography and the other is an enzyme process called the alcohol dehydrogenase (ADH) method. Neither is commonly used by the average medical laboratory in this country (the least expensive gas chromatograph costs nearly \$1,000).

There is no possible way to determine the accuracy of test methods which are used because toxicology reports do not include this information. Since toxicology investigations are submitted from several hundred different medical labs, with hundreds of technicians using a variety of test methods and with no way to determine what those methods are, all quality control for accuracy of the data is lost and with it any claim to being scientific evidence.

Most laboratories have procedures set up to test for blood-alcohol on living tissues and there is a basic difference in the approach to handling post-mortem tissue. Many blood-alcohol test methods actually test for a "volatile reducing agent" in blood or tissue instead of specifically for ethyl alcohol. The only volatile reducing agent normally found in healthy humans is ethyl alcohol. With post-mortem material, other volatile reducing agents such as acetone, acetaldehyde or methyl alcohol may also be present.

The majority of tests are not specific enough to tell the difference between these substances and ethyl alcohol. So a great deal of weight must be placed on the qualifications of the technician performing the test and equally as much

weight on correct interpretation of the resultant data. Errors on the side of false positive results occur frequently in the lower blood-alcohol levels. It is also possible, occasionally, to get a false negative result.

This, in fact, was repeatedly pointed up by the number of lab reports which indicated a small quantity of alcohol but included a statement that "values 0 to 50 mg% are considered negative," or "values below 50 mg% not significant."

There is no way of knowing in all cases whether the medical technician's reference is to test validity or to state laws which govern chemical tests for blood-alcohol. In some states, blood-alcohol levels below 50 mg% is prima facie evidence of sobriety. Nevertheless, the FAA data did include these cases in each instance.

From a study of 104 cases in 1965 in which positive blood-alcohol was measured, 12 fell below 15 mg% (one beer) and 13 were 200 mg% (12 beers) or greater. Below 50 mg% are 47 cases. At 53 mg% are two more cases in which the toxicology reports specifically state "not significant."

One of these latter cases involved an ag pilot in an intense fire with a full load of 2-4-D and diesel fuel. Any of these factors is capable of confusing the results of a blood-alcohol test. The M.D.'s report, included in the accident file, stated: "Pilot's body was severely burned . . . and the odors of diesel fuel and weed killer were present." No wonder the toxicology report said the finding was not significant!

While one can argue that those at the low end of the scale were actually sober, it is inescapable that at the upper end were some pie-eyed pilots. How sober or how drunk was not a factor in the FAA study. Neither was "consumed" or "ingested" alcohol.

Among the accidents where the FAA points an "alcohol involved" finger while the CAB does not find alcohol as a causal factor are nine instances involving fire and five involving possible putrefaction due to delay in reaching the accident site. (Two obvious putrefaction cases were eliminated from the data). At least three of the accidents involved agricultural planes carrying nearly full loads of chemicals.

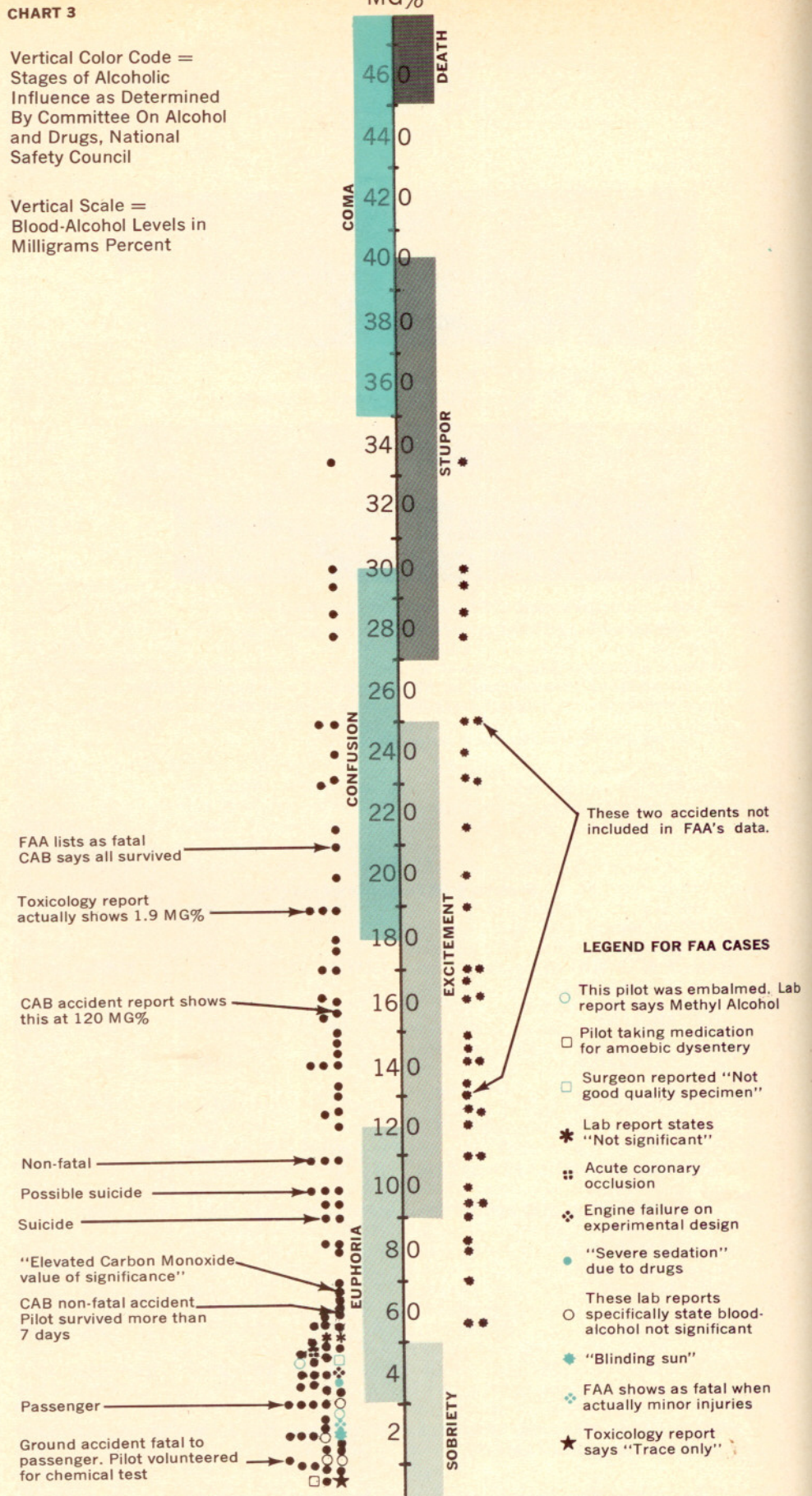
Post-mortem specimens must be analyzed within a short period of time unless carefully preserved. The preservation method will depend on type of material to be preserved if one is to eliminate the possibility of substances forming which might confuse the results of a toxicology investigation.

Contamination of specimens to be analyzed is an area of concern over which FAA can exercise little control. The chances for contamination in high-speed impact aviation accidents, involving fuels (a source of "volatile reducing agents" from hydrocarbons), chemical/fuel mixtures (in agriculture spraying accidents) or other contaminants, are high. In one accident the doctor's report states, "These specimens were not of the highest quality . . ."

CHART 3

Vertical Color Code = Stages of Alcoholic Influence as Determined By Committee On Alcohol and Drugs, National Safety Council

Vertical Scale = Blood-Alcohol Levels in Milligrams Percent



FAA lists as fatal CAB says all survived

Toxicology report actually shows 1.9 MG%

CAB accident report shows this at 120 MG%

Non-fatal

Possible suicide

Suicide

"Elevated Carbon Monoxide value of significance"

CAB non-fatal accident Pilot survived more than 7 days

Passenger

Ground accident fatal to passenger. Pilot volunteered for chemical test

These two accidents not included in FAA's data.

LEGEND FOR FAA CASES

- This pilot was embalmed. Lab report says Methyl Alcohol
- Pilot taking medication for amoebic dysentery
- ◻ Surgeon reported "Not good quality specimen"
- \* Lab report states "Not significant"
- ⚡ Acute coronary occlusion
- ⚙ Engine failure on experimental design
- "Severe sedation" due to drugs
- These lab reports specifically state blood-alcohol not significant
- ⚡ "Blinding sun"
- ⚡ FAA shows as fatal when actually minor injuries
- ★ Toxicology report says "Trace only"

1965

1965

FATAL accidents in which Federal Aviation Administration says there was "alcohol involved"

FATAL accidents in which ingested alcohol was determined to be a cause by the Civil Aeronautics Board

yet the low quantity of measurable alcohol was included in the FAA data. A similar case involved an ag pilot who experienced a prop failure (one of several accidents included in FAA's report that were caused strictly by mechanical failures) and crashed in an airplane fully loaded with chemical fertilizer.

This same category includes two cases in which the blood-alcohol tests were made *after* the bodies had been embalmed. In one of these cases the lab report says, "Methyl alcohol, 27 mg%." This report flatly states: "The methyl alcohol that is present is in all probability, due to the post-embalming state of the body at time of autopsy." The second case includes a medical doctor's letter which states, ". . . funeral director was unusually cooperative, so cooperative in fact that he insisted that the blood, free of embalming fluid, could be taken right from the heart, even though the body had been embalmed some time."

Embalming fluids may contain either methyl or ethyl alcohol but alcoholic beverages contain only ethyl alcohol. The positive blood-alcohol result in both instances was included in the FAA's data. A third embalmed case was included (not shown in Chart 3) because of witness reports and the finding of a broken liquor bottle at the accident scene.

Other interesting cases include one in which it was the passenger who had a positive blood-alcohol level instead of the pilot. Some might call this balanced, however, by the fact that one pilot's positive blood-alcohol finding was overlooked.

One case with a very low (4 mg%) blood-alcohol level was included on a pilot known to be taking medication for an amoebic dysentery condition who crashed while attempting an expedited landing. In another case listed by the FAA at "190 mg%" it was discovered that another decimal point had been lost and the toxicology report actually stated, "1.9 milligrams per 100 milliliters" or 1.9 mg%. (In the earlier discussion about cases below 50 mg%, this one is included although Chart 3 shows it at 190 mg%.)

Endogenous ethanol (ethyl alcohol that originates internally) must be discussed only because the FAA has chosen to use figures so low that endogenous alcohol becomes a possibility. Some scientists claim this substance exists in "trace" quantities while others say they cannot find evidence of it at all.

One interesting technical study reviewed in this investigation (by Saviano and Vacca) exposed 20 male and female subjects to an air pressure of 450 mmHg (13,850 feet MSL) for one hour. It reported a rise in the ethanol concentration in 14 of the subjects from preexposure levels of 0 to .9 mg% to between 1 and 8.2 mg%. These researchers report that an additional rise in the responsive subjects was produced by the administration of adrenalin. The conclusion, of course, is that hypoxic conditions may increase endogenous

ethyl alcohol to a substantial extent. How many accident victims get a sudden increase of adrenalin immediately preceding the accident is unknown. A more recent test (by Zysk, Witkowski and Kalenta) using 94 subjects draws essentially the same conclusions.

FAA data include one case of a known suicide with a blood-alcohol level high enough (90 mg%) to probably impair his flying ability but possibly not high enough to influence a decision so grave as taking one's own life. Rightfully, this is a determination that can only be made by professionally qualified medical examiners. Although this pilot went straight from tavern to airplane after announcing suicidal intent, the CAB did not feel that the amount of alcohol justified listing it as a factor. It is pure speculation, but had this man changed his mind about suicide and subsequently crashed during a landing attempt, alcohol certainly would have been pinpointed by CAB.

In still another case, the M.D.'s report in the accident file states: "Presence of 36 mg% alcohol does not represent intoxication in itself although it would cause a minor impairment in judgment and motor activities, however, the additional finding of 628 mcgrms Clor-trimeton per 100 grams of liver could well cause severe sedation." The final report published by CAB stated: "Incapacitation from medicating drugs." It further described that this amount of Clor-trimeton "could cause dizziness, nausea, rare hyperpyrexia [abnormally high fever] and drowsiness."

There was a dramatic increase in the percentage of pilots in the less-than-50 mg% category, according to FAA, during 1965. The explanation favored by FAA is that this indicates an improving trend; that, combined with hopeful signs indicated by decreasing percentages each year in the higher blood-alcohol levels, pilots are starting to get the word through AOPA Clinics, Fly-Ins and other pilot meetings, with the result that they are imbibing less.

The counter-argument, supported by the belief that people don't change their drinking habits overnight, charges that something is amiss which makes these statistics less than reliable. A random sampling of individual cases turns up considerable evidence to support this argument.

Statistics from previous years probably are not reliable for the same reasons that the 1965 statistics are unreliable. It is known, for example, that the 1963 statistics go as low as 14 mg% blood-alcohol.

At CAB, Edward E. Slattery, Jr., information officer for the Bureau of Safety, explained the CAB philosophy. Because of the nature of CAB and legal ramifications which may be attached to its causal determinations, investigators are cautious about assigning "alcoholic impairment of efficiency and judgment" as a cause in any accident.

CAB accident reports which determine probable cause may not be used in a civil court. Yet they are certainly

used as a guide for separate investigations, Slattery advised, leading to conclusions which provide a basis for litigation. (However, FAA, can take action against an airman based on findings of a CAB accident report.)

Jack Crawford of CAB's Accident Evaluation Section reported, "We have to be able to factually support anything we publish. If there is any doubt, we don't use it." If suspicious, he said they will consider the entire circumstance surrounding the accident and exhaust every means to prove the fact beyond a reasonable doubt. If they can't, alcohol will not be assigned as a cause because it can be too damaging to the victim.

While in the process of peeking into bureaucratic closets, there was discovered a lack of communication and exchange of information between CAB and FAA which is sometimes detrimental to the best interests of aviation safety. For instance, it is FAA that usually foots the bill for autopsies and toxicology exams in general aviation accidents and there are cases where probable cause has been determined by CAB without knowledge of the existence of toxicology reports that might question the pilot's sobriety at the time of the accident. "They never asked," said an unofficial source.

Maj. William H. Berner, M.D. (U.S. Army), who is attached to CAB's Human Factors Section, said they consider any valid blood-alcohol level above 50 mg% to be in the area of contributory cause, but never a primary cause by itself.

"We consider aviation a more skilled performance task than driving an automobile and probably some impairment exists at 50 mg%. We don't have any clinical evaluation in the fatalities so we have to make our criteria fairly strict." The doctor concluded, "When the Board puts a pronouncement on an accident as to probable cause, this is different from just keeping statistics for edification so we are probably much more conservative."

The 38 fatalities during 1965 in which CAB found "alcoholic impairment" as a cause factor is identical to the 1965 motor-vehicle traffic deaths in St. Paul, Minn. Using Dr. Mohler's guess of "about 165" pilots a year who die in "alcohol associated" accidents, one finds a figure equal to the combined 1965 motor vehicle deaths in San Antonio, Tex., and Portland, Ore. One would have to double the 165 number to include passengers also involved in these accidents.

This may help put the problem in some perspective, relative to the "alcohol associated" motor vehicle slaughter of as many as 26,000 people in 1966, that our nonflying friends can understand (the National Safety Council estimates that drinking may be a factor in as many as half of the fatal motor vehicle accidents).

The truth lies at some point between CAB's carefully studied findings and FAA's overzealous, throw-in-the-kitchen-sink approach. That comparatively few

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## What Started It All?

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The missile that led the world to believe that general aviation is peopled with tipsy toppers and that brought pilot protests to AOPA by the scores was a United Press International news story, filed last Dec. 22. Here is that story as it came off the teletype machine:

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NX ONITE  
DRUNKS 12/22 WA  
Day LD

By Robert F. Buckhorn  
United Press International

Washington (UPI)—Drunk flying accounts for 30 percent of the fatalities among lightplane pilots, mostly because they treat their planes like their cars, a Federal Aviation Agency official said today.

Dr. Stanley R. Mohler said the lightplane pilot who drinks and flies feels he is in no more danger than he would be "driving home after a couple of drinks."

"This assumption is wrong and it is killing the pilots at the rate of about

165 a year," said Mohler, who heads the Aeromedical Applications Division of the FAA's Office of Aviation Medicine.

"Somewhere between 100 and 200 hours of flight experience" is the crucial point for pilots who carry aloft their personal driving philosophy on the ground, Mohler said. At this point they get overconfident and get the false idea that "if I can drive adequately with two or three drinks, then I can fly with the same amount of drinks."

Statistics show they can't, Mohler said.

From 1963 to 1965 there were about 550 fatal lightplane accidents annually, he said, and some 30 percent of these involved alcohol. The corresponding highway statistic is about 50 percent, according to the National Safety Council.

These were pilots who failed to appreciate the fact that flying may be relatively simple, but it is still "ten times more complicated than driving a car,"

Mohler said.

"Just to get a plane off the ground and back again safety [sic] requires 80 separate actions a pilot must do in sequence. To get a car out of the garage and drive it around the block requires only eight separate steps," he said.

According to Mohler, only 1 ounce of whiskey can impair a pilot's flying ability. If he flies after several drinks, the results are often fatal.

Drunk flying is not a problem among commercial airline pilots, Mohler said. They are aware of the danger, and—until recently—it was believed lightplane pilots were too.

But in 1963 the government obtained permission to perform autopsies in all cases where alcohol was believed to have contributed to a crash and the full scope of the problem began to be revealed.

Unfortunately, Mohler said, there is still no effective means of policing drunk flying. The FAA can take a pilot's license away after a flight, but there is no effective way to stop him from taking off while drunk. □

died in these accidents should be no consolation to us, who must now stand in the shadow of the "drunken flyers" stigma. The fact remains that some people do drink and fly, which results in an needless toll in lives and property while putting all general aviation airmen in a defensive public relations position. This article is by no means intended to whitewash that problem.

If some of the government's statistics are not reliable it must reasonably follow that some inaccurate conclusions may have been drawn by FAA doctors exposed to those statistics. For instance, The American Society of Clinical Pathologists' Bulletin of Pathology in September 1965 carried a letter from Dr. Frank K. Raymond, chief of FAA's Aeromedical Standards Division, titled "Wings of Death." Dr. Raymond used such objective phrases as "grave situation" and "control is imperative" and "this serious and far-reaching problem." Was his evaluation based on accurate or even scientific data?

From our investigation it appears that FAA's Office of Aviation Medicine has attempted to use statistics to prove the premise that small amounts of alcohol do in fact impair airmanship. The "proof" is not convincing—though the premise has a solid base of proof in countless scientific studies—because the

proportion of cases remains far too high in which there is an honest question of whether "consumed ethyl alcohol" was actually involved.

This hangs a big question mark over the credibility of the FAA's "findings." Maybe general aviation pilots really are far more self-disciplined about flying and drinking than given credit. Possibly this was the reason behind the widespread indignation within the general aviation fraternity that followed the December UPI story.

Whether alcohol will impair and whether pilots, to any substantial extent, are actually consuming alcohol and being impaired by it are two different questions. FAA's Office of Aviation Medicine fails to make this distinction, which forces the conclusion that release of the "drinking pilots" data to the public was, indeed, extremely ill-advised.

### References

In addition to studying hundreds of CAB and FAA accident reports and records dur-

ing the course of his investigation, Author Duane E. Best consulted numerous authorities and publications to present as comprehensive a study as possible. The following were among his primary printed reference sources:

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What correlation is there between alcohol and other accident cause factors? Is flying, as claimed by Dr. Mohler, really "10 times more complicated than driving a car"? A second article will discuss these among other questions.

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