

REPORT OF THE CIVIL AERONAUTICS BOARD
on the
Investigation of an Accident Involving Aircraft
in Scheduled Air Carrier Operation

While coming in for a landing at night November 19, 1943 through low-hanging smoke at New Orleans Municipal Airport, an Eastern Air Lines Douglas DC3 was involved in an accident causing loss of the left propeller and other damage. Continuing the flight on one engine, the aircraft was landed at 11 37 p.m. CWT 1/, without injury to the crew or 12 revenue passengers. The airplane had made one approach without landing and was on its second approach when the accident occurred. The aircraft, NC 19968, designated as Flight 12, was in scheduled air carrier service between Houston, Texas and New York, N. Y.

CONDUCT OF INVESTIGATION

The Atlanta Office of the Civil Aeronautics Board received notification about 12:30 a.m., on November 20, 1943, and the Civil Aeronautics Board (hereinafter referred to as the Board) initiated an investigation in accordance with the provisions of Section 702 (a) (2) of the Civil Aeronautics Act of 1938, as amended. 2/ Fred G. Powell, Senior Air Safety Investigator in charge of the Atlanta Office of the Board, proceeded to the scene of the accident, arriving there at 5 00 p.m., on November 20, 1943. The damaged aircraft had been removed from the landing area and placed under company guard near one of the hangars.

Hearing

In connection with the investigation the Board ordered a public hearing in which William K. Andrews, Chief, Investigation Section, Safety Bureau of the Board, was designated and served as presiding officer. This hearing was held November 29 and 30, 1943, at New Orleans, and the following Safety Bureau personnel participated: Fred G. Powell and R. P. Parshall, Senior Air Safety Investigators, and

1/ All times referred to herein are CWT unless otherwise specified.

2/ Section 702 (a) (2) provides that it shall be the duty of the Board to "Investigate such accidents and report to the Authority the facts, conditions, and circumstances relating to each accident and the probable cause thereof."

Kenneth C. Sonner, Powerplant Specialist.

Upon the basis of all the evidence accumulated during the investigation, the Board now makes its report in accordance with the provisions of the Civil Aeronautics Act of 1938, as amended.

SUMMARY AND ANALYSIS OF EVIDENCE

Air Carrier

At the time of the accident Eastern Air Lines, Inc. (hereinafter referred to as Eastern), a Delaware corporation, was operating as an air carrier under a certificate of public convenience and necessity and an air carrier operating certificate, both issued pursuant to the Civil Aeronautics Act of 1938, as amended. These certificates authorized the corporation to engage in air transportation with respect to persons, property and mail between various points in the United States, including Houston and New Orleans.

Flight Personnel

The crew of Trip 12 consisted of Erle White Miles, captain; Alden Lloyd Lohrke, first officer; and Frank Bright, flight steward.

Captain Miles, age 35, was employed by Eastern in the Traffic Department on March 1, 1934. He was assigned as first officer November 23, 1935, and as captain June 15, 1939. He held an airline transport pilot certificate with a multi-engine land, 1000-3000 h.p. rating. He had accumulated approximately 8413 flying hours, 4119 of which were in DC3 equipment. His last physical examination, required by the Civil Air Regulations, was accomplished June 16, 1943. He had his last instrument check April 13, 1943, and his last route check on July 1, 1943.

First Officer Lohrke, age 31, was employed by Eastern as an apprentice pilot November 1, 1942, and was promoted to first officer on February 18, 1943. He held a commercial pilot certificate with single-engine land, 0980 h.p. and instrument ratings. He had accumulated approximately 617 flying hours, 342 of which were in DC3 equipment. His last physical examination, required by the Civil Air Regulations, was accomplished March 3, 1943.

Steward Bright was employed by Eastern on June 24, 1941.

The Aircraft

The aircraft, NC 19968, was a Douglas DC3-G202A, twin-engine passenger plane, Serial No. 3252, and had been flown approximately 11,833 hours. The time since its last major overhaul was about 1729 hours. It was purchased from Douglas Aircraft Company, Inc. by Eastern, the registered owner, on October 26, 1940. This aircraft was equipped

with two Wright G202A engines and two Hamilton Standard 3-bladed hydro-matic propellers. The engines and propellers had been operated approximately 379 hours since their last major overhaul. The gross weight of the aircraft at the time of take-off was 23,667 lbs, which was well under the maximum allowable.

History of the Flight

Trip 12 originated at and departed from Houston at 9:20 p.m. on route to New York, with the first stop scheduled at New Orleans. The flight was dispatched to fly at 7000 feet and the estimated arrival time at New Orleans was 11:20 p.m. Routine radio checks were made over Beaumont, Texas; Lake Charles, Lafayette, and Laplace, Louisiana. When the flight arrived in the vicinity of the New Orleans Airport the airport control tower notified Captain Miles that a smoky condition existed in the vicinity of the airport and advised the use of Runway 23, (the northeast-southwest runway) stating that the wind was southwest- 13 m.p.h. When the flight arrived at a point about 5 miles west of the field, the tower was again contacted for approval for the flight to make a right turn and this approval was given. The flight was continued to approximately 2 miles north-northwest of the airport, at which time the captain was advised by the control tower that the visibility had lessened to one-half mile due to low-lying smoke in the vicinity of the airport. Captain Miles at this time relieved First Officer Lohrke, who had been at the controls for some time, and proceeded to make a right turn for an approach from the northeast. The aircraft, with landing and navigation lights plainly visible, approached the runway in a comparatively normal manner, although it was estimated by some witnesses to have been slightly high. At the approximate center of the field and at an altitude of about 50 feet, Captain Miles ordered the gear retracted, applied power, started a normal climb, and, after proceeding beyond the boundaries of the airport, made a wide 180° turn to the left. The plane was then headed in a northeasterly direction and continued to a point estimated by the control tower operator to have been from 1 to 1½ miles east of the airport, and a left turn from the base leg onto the approach was executed at an altitude of from 200 to 300 feet. When the airplane was again lined up with the northeast-southwest runway the pilot began what appeared to be a normal approach. As the plane proceeded in the glide toward the runway, witnesses observed that, at a point estimated to have been one-quarter to one-half a mile beyond the seawall which bounds the airport, it disappeared in the low-hanging smoke. It was while the plane was concealed in this smoky haze that witnesses heard a loud crashing sound, followed by the noise of racing engines, and then a second and louder crash in rapid succession. Almost immediately thereafter the airplane reappeared through the smoke and above the seawall and the witnesses on the ground observed it in a climbing left turn. It then proceeded almost due south, passing over the most easterly hangar on the airport at an altitude estimated to have been between 85 and 100 feet and about 10 to 20 feet above the hangar. At this time Captain Miles contacted the airport control tower by radio, requesting information as to which runways were open. He was informed by the control tower that all runways were open but that visibility was better on the west side of the field, on the

north-south runway. The aircraft made $1\frac{1}{2}$ turns to the right about three miles due south of the airport, approached and landed north on the north-south runway. After making contact with the runway the aircraft rolled approximately 2500 feet, groundlooped to the right about 360° , and stopped 255 feet east of, and approximately 800 feet from the far end of the runway. It was here that the passengers and crew disembarked.

Description of the Wreckage

Examination of the damaged aircraft revealed that the left propeller, the reduction gear assembly, the engine cowling and part of the front crankcase or nose section of the left engine had broken away from the airplane in flight.

Although the landing gear supported the airplane during and after the landing run, the left side had sustained damage prior to the landing. The retracting strut piston had buckled at a point about a foot below the packing nut on the cylinder, but the weight of the landing gear and the hydraulic pressure straightened the strut sufficiently to allow the gear to extend itself. Small dents on the upper portion of the drag strut, and a fracture of the hydraulic fitting at the top of the lower end of the retracting cylinder, together with damage inside the nacelle, indicated that the left side of the landing gear had been forced into and beyond its retracted position at some time prior to the final landing.

The damaged retracting piston is considered significant inasmuch as it limits the circumstances under which the failure of this part could have occurred. Due to the protection afforded the strut by the wheel, tire and wheel well, and in view of the lack of any marks on the strut, it does not seem possible that the strut itself was damaged by direct impact with another object. The geometry of the landing gear is such that the retracting piston cannot be subjected to any load due to forces applied at the wheel when the gear is latched in the extended position. However, with the gear in any unlatched position, the strut can be subjected to a load as a result of any external force on the wheel. A compressive load necessary to produce buckling of the strut could be obtained only if the external force on the wheel were in a generally upward direction. A force acting aft or down at the wheel would produce tension in the retracting strut. The appearance and location of the buckle along the length of the piston definitely indicated that at the time of failure the landing gear was in about a one-third retracted position. This latter conclusion was confirmed after a detailed examination of the damaged strut by the Division of Metallurgy, National Bureau of Standards. It was not possible to establish whether the gear was moving up or down at the time.

The left side of the fuselage received major damage when it was apparently struck by the engine cowling. The sliding window on the left side adjacent to the pilot's seat had been shattered but remained in place.

Innumerable small splinters of glass were found in the cockpit. The bulkhead wall, directly behind the captain's seat, had buckled and the front cargo door had broken free of the hinges. The lower portion of the leading edge of the left wing, midway between the wing attachment to the center section and the left landing light, was damaged. The nature of most of the damage indicated that the object or objects causing it were not sharp. However, there was one cut, approximately 15 inches long, parallel to the wing chord on the lower surface of the left wing, 4 feet out from the attachment to the center section and about 5 feet aft of the leading edge.

A search for the missing propeller and other parts started the day following the accident when the United States Army Rescue Boat Squad commenced dragging the area of Lake Pontchartrain, over which the flight had passed. On Sunday, November 21, investigators for the Board, representatives of the CAA, and personnel of Eastern, joined and extended the search over the entire terrain in the vicinity of the airport. On three separate days aerial surveys were made in an aircraft furnished by Eastern. The search was continued intermittently, when weather permitted, until the evening of December 1, but without success. Later the Board secured the use of Naval flotation and electric metal detecting equipment and on June 25, 1944, the search was renewed by Naval personnel assisted by representatives of the Board and Eastern. This search was continued through July 3, 1944, but the missing parts were not found. After a preliminary examination of the left engine at New Orleans, it was forwarded, under Government seal, to Eastern's engine overhaul shop at Miami, Florida, for a detailed tear-down examination. On Thursday, December 2, 1943, at Miami the Government seal was broken by the Powerplant Specialist of the Board in the presence of representatives of the United States Senate Sub-Committee on Safety in Air, CAA Air Carrier Maintenance Section, and Eastern. This group was in attendance during the disassembly inspection, and an analysis of the results of the examination indicated definitely that the engine had not failed prior to the breaking of the front section of the crankcase.

There were indications that as a result of impact and application of power, the propeller and reduction gear assembly left the airplane. The manner in which the front section of the crankcase was broken, evidenced by that part which remained attached to the main crankcase, indicated that an impact of extreme force was transmitted to the propeller shaft through the propeller hub from the propeller blades. The shape and contour of the fracture clearly indicated that the force came from a direction opposite to that of propeller rotation.

The general condition of the engine mount tubing, the rubber mount bolt retaining disks and five of the nine rubber bushings, indicated shock loading caused by severe impact rearward, upward and from a direction opposite to that of propeller rotation.

That the force of impact traveled from front to rear was further evidenced by marks on the front surface of the propeller reduction driving gear. This was also substantiated by the damage to the rear side of the outer race flange of the rear main crankshaft roller bearing which

was found chipped and broken off in many sections by excessive impact and movement of the rollers rearward.

Weather

The weather in Louisiana on November 19, 1943 was dominated by a weak high-pressure system. As a result, the air was dry, stable and almost cloudless and a shallow layer of relatively cold air prevailed during the night as a result of radiation cooling. Almost ideal flying conditions therefore prevailed except where there was local smoke. In the vicinity of New Orleans, muskrat trappers were burning off some of the swamp area to facilitate trapping. This burning procedure is usually carried on for several days, which was the case at this time. During the day, when the air was warm near the surface, the smoke was being carried aloft and away from the area, thus preventing much decrease of visibility by accumulation. At night, however, with the development of a shallow layer of cold air, the boundary between the cold surface air and the warmer air above acted as a lid as far as vertical mixing was concerned. The smoke from the burning swamp therefore accumulated in the shallow cold air layer on the night of November 19, as well as on previous nights, and the wind direction was right for drifting the smoke over the New Orleans Airport. This layer of cold air was 85 to 100 feet deep about the time of the accident. Local weather observations taken at the New Orleans Airport on November 19 first reported smoke as a weather obstruction to vision at 6:00 p.m., the visibility being reported as 6 miles. A visibility of 6 miles with light smoke continued to be reported up to and including 7:00 p.m. At 7:30 p.m. and 8:00 p.m., visibility was reported as 7 miles and light smoke was omitted from obstruction to vision. At 8:30 p.m. and 9:00 p.m., visibility was reported as 4 miles with light smoke. The regular hourly observation at 9:30 p.m. was designated as a special, at which time the classification was changed from contact to instrument and the visibility was reported as 2 miles, with light smoke. This condition continued in the 10:00 p.m. and 10:30 p.m. weather reports. At 10:40 p.m. a special observation indicated visibility $3/4$ mile, light smoke. At 10:55 p.m. another special observation revealed visibility $1/2$ mile and moderate smoke which continued thereafter until after the time of the accident.

Witnesses

Three crew members and two passengers of the subject flight, as well as three airport traffic control tower operators, two Army guards and an air express supervisor who were on the airport, gave testimony. A third passenger, unable to attend the hearing, forwarded a signed statement concerning some details of the accident. There was no evidence that anyone had seen the actual damage occur to the landing gear and propeller, nor did anyone testify that they had witnessed the propeller and reduction gear assembly leave the airplane.

On account of the low-hanging smoke which blanketed the airport and immediate vicinity, augmented by the normal darkness of night, witnesses from the ground could not follow the path of the airliner during the period it was proceeding in the smoke layer, even though its landing and navigation lights had been lighted on its first approach to the airport and were apparently used until the aircraft finally landed.

Most of the major details in the testimony of Hugh B. Erminger, the airport traffic control tower operator who was on duty in the tower at the time, were substantiated by the testimony of the other traffic controllers and the two Army guards. Erminger explained that he believed the flight overshot the airport on its first attempt to land by stating that when it was about 50 or 60 feet high, "in front of the tower," it "pulled out and started around again. He added that the height of the smoke layer "was just about the tower level" (85 feet). When asked if the smoke was thicker on the ground, he answered, "Well, I could see the flood lights and I could see check lights over on the Pontchartrain wall, and I lighted up all floodlights to see how bad it was, and we could see all floodlights very good, but they had a reddish cast . . . , through the smoke." He estimated the visibility at one-half mile, variable, and stated that he did not believe it went below that estimate. He testified that he could see the airplane plainly when it turned into the second landing approach; that it was above the smoke layer at that time and at a distance he estimated as between 1 mile and $1\frac{1}{2}$ miles beyond the seawall out over Lake Pontchartrain, which is the airport boundary. After the flight had completed its approach turn and lined up with the northeast-southwest runway, he estimated that its altitude was between 200 and 300 feet, and shortly thereafter it descended into the smoke layer and disappeared from his view. According to another airport traffic control tower operator, C. H. Boone, who was in the tower at the time preparatory to going on duty at midnight, the flight "seemed to be dragging in a little low . . . because it seems that ships are usually about maybe 700 or 800 feet when they turn on the final approach." He also estimated the altitude of the flight at this time as having been between 200 and 250 feet.

From this point on, the testimony of all the witnesses from the ground agreed in all major details. In what was variously estimated as a "few" and "ten seconds" after the flight descended and disappeared into the smoke they heard a noise, described variously as a "thud," "crash," "crashing noise," etc., and that just a few seconds thereafter a second noise, louder and of longer duration, was heard. Apparently it was accompanied by the roar of one of both of the engines. To some it appeared that the flight had just emerged from the smoke at the time of the second "noise," while to others the flight was still obscured by smoke. However, all agreed that the airplane did emerge in a climbing attitude, at altitudes estimated as "just barely clear of the sea wall," "50 feet," "85 feet," and "100 feet" above the airport. The differences in these estimates is readily understandable as the smoke condition was

described as having been "spotty" and "variable", therefore, the witnesses who were observing from different angles and distances saw the airplane emerge from the smoke at different times. All agreed that its course was changing from southwest to south; that it was in a climbing turn to the left and that it passed low over the most easterly hangar on the airport. One of the Army guards at the hangar was questioned regarding the clearance the airplane had when it passed over the building, to which he answered, "It was apparently very little. It could not have been over 10 or 15 or 20 feet at the most."

From all of the evidence it is apparent that the airplane then continued south at distances estimated at from 2 to 4 miles and executed a complete turn and a half to the right and lined up with the north-south runway. During these maneuvers preparatory to a third landing attempt, Captain Miles, according to the testimony of Erminger, the control tower operator on duty, requested information by radio as to which runways were open. Erminger suggested the north-south runway and gave him the wind direction as southwest 13. All three traffic control operators and the CWA Aircraft Communicator at New Orleans testified that the captain then requested that a crash truck stand by, and quoted him as saying, "I am not sure of the condition of my landing gear." According to the operators, the flight proceeded to and did land, headed north, on the north-south runway. At the hearing, neither Captain Miles nor the First Officer recalled Miles' radio message to the tower regarding the landing gear; however, both testified to making the request for a crash truck.

While testimony of Captain Miles and First Officer Lohrke was substantially the same, it did not agree in many of the major details with that of the other witnesses. The captain stated that he did not overshoot on the first landing but that after he got into the smoke and the airport lights took on a reddish cast, he applied power and decided to go around again. He said he did not recall how low he came on this approach but that he was roughly about 1000 feet from the far boundary of the field when he applied power and instructed Lohrke to advise the tower that they were going around again. He explained that he climbed to about 1200 feet, proceeded to the radio range station, just east of the field (about 1 7/8 miles) and at this point he made a left turn. He added that, "we did not quite reach the tower" and that "by that time . . . I had let down to 1000 feet. I ordered gear down, and completed this turn and got completely lined up with the field, because it was in full view." When asked how far he was from the approach boundary of the field at the time he completed his turn, he answered, "I would not be in a position to say, sir, because it was so normal that I just was not reading the instruments." When asked what altitude he had at that time, he stated that he did not know "exactly". He continued, "As well as I recall, the engines were throttled back to around 18 inches pressure, and at about 21500 feet off the northeast runway I

experienced a jolt." The captain was then questioned as to what altitude he had at the time he experienced the jolt and he answered as follows: "As I stated a few days ago to Mr. Powell (CAB Investigator), I was at a normal altitude. At the time I made my report to him, I believe I left him with the impression that I was from 800 to 1000 feet high. However, I realize that would have been abnormally high, being that distance from the airport, as a normal altitude, as I figured, would be 400 or 500 feet." Later in his testimony he reduced his estimated altitude at the time he experienced the first jolt to "300 to 500 feet." When asked to describe the jar he felt at that time, he answered, "Well, I once hit a buzzard in cruising altitude, and it gave me the same type of thud or jar." He continued describing his actions on the subject flight by stating that immediately upon feeling the jolt he applied power to the maximum take-off limit and that "within the next few seconds, I don't recall the time element in there, one motor became violently rough." When questioned as to which engine, he answered, "At that time I did not know, Sir. Just about at the same time I ordered gear up. Well, as I applied this maximum take-off power I then realized I was going up with a lefthand yaw, leaning to the left. I immediately knew that the left engine was the bad engine." He stated that without checking his tachometer he applied full throttle to the right engine, closed the left throttle and turned the left ignition switch off. He stated that, "just as I reached for the feather-button this terrific wallop hit us in the side, left side of the fuselage." When asked to estimate the lowest altitude he reached after the jolt and prior to reaching the east boundary of the airport, he replied, "I don't know that I can say definitely because when I got this abnormal jolt I was busy from then on out . . . not so much on watching the altitude." He stated that he realized the hangar and the administration building were on his left side and that he therefore maintained maximum climbing attitude, and continued, "Of course, during this time I did not have a chance to look out. When I did look out we were directly in line with and well over the revolving beacon and the control tower." At this time, he stated, he observed the railroad trestle off to his right, instructed his co-pilot to ask the tower which runway looked best for landing, and when he was advised the north runway and given the wind direction and velocity, he decided to make a 360° turn to the right to observe the runway. At this point, he said, he was a mile or a mile and a half south of the airport. He continued another 180° to the right, made his approach and proceeded to land. He said he ordered full flaps and immediately realized that he "was not getting flaps" and that after making contact with the ground and realizing he was rolling downwind, he applied brakes and found that he "had no brakes." He added that after passing the east-west runway intersection, he decided the best thing to do was to groundloop into the airport, which he did.

From the testimony of the captain and the first officer, it is apparent that neither paid much attention to the readings of their altimeters, airspeed indicators, tachometers, or manifold pressure gages

after the captain took over the controls at 1200 feet altitude and started his first approach to land.

Two well-qualified witnesses, R. W. Richardson, an aeronautical inspector, and G. L. Converse, a senior flight supervisor, both employed by the Civil Aeronautics Administration, were passengers aboard the subject flight and testified at the hearing.

Richardson was seated in the front seat on the lefthand side, next to the window. He stated that he had been asleep on part of the trip from Houston to New Orleans; that he had awakened about 20 or 30 minutes out of New Orleans and that the visibility was still good at that time. He said he had been looking out of the window and recognized the airport at New Orleans. His first intimation, he recalled, that the visibility was becoming limited, was when the landing lights were turned on and he could not see anything due to the reflection of the light on the smoke. Nothing was very unusual, he thought, except that the captain was going around again for another approach. He stated that during this second approach he felt the first impact which he described as a jar that seemed to be definitely from the left side of the airplane, and "almost immediately, or a very short interval, we got the second one which was a little more severe than the first." He added that "the first thing that crossed my mind was the possibility that we had struck the edge or top of the seawall." He continued, "I could not see anything at about the time of the second jar. This jar, by the way, from where I was sitting, was accompanied by a grinding noise as if some gears were chewing each other up." In a signed statement submitted by Richardson a week after the accident occurred, he stated that immediately following the second jar he looked out of the window and "noticed that the left propeller, which had previously been very prominent in the glare of the landing lights, was missing and that the cowling was gone from the left engine." In his testimony he stated that he could not estimate the altitude of the airplane but that he saw something dark below which he thought at the time could have been either the surface of the water or the ground.

Converse was seated on the aisle seat, alongside of Richardson. He stated, "I do not recall any of the details about the second approach except I do remember that the landing lights came on, and very shortly thereafter this impact or banging or clattering, which to me appeared on the left side of the ship . . . it ran through my mind that we had struck something, such as the edge of the runway boundary, and throttles had opened, and just momentarily the wheels had touched the runway."

Robert V. Ulsh, a senior flight supervisor, CAA War Training Service, another well-qualified witness and a passenger on the subject flight, was unable to attend the hearing, but submitted a signed statement concerning the circumstances surrounding the accident. In referring to the second

landing approach, he stated as follows: "On the final leg it appeared that the pilot let down and struck some object or surface with the landing gear. At this point, as recalled, power was again applied and immediately after a loud noise occurred as if something had struck the side of the fuselage. The aircraft seemed to be in the air for a short interval, then seemed to lightly touch the surface again. From there on a take-off and circuit of the field was again accomplished and again the approach was started and this time a landing was made."

Testimony of the flight steward indicated that he was totally unaware of what had happened and gave no pertinent details of the accident.

Mr. J. W. Bowdoin, meteorologist and weather forecaster at Atlanta for Eastern, testified that he had made the New Orleans terminal forecast and the trip forecast from Houston to Atlanta via New Orleans. The regular terminal forecasts issued for New Orleans by the United States Weather Bureau for the evening of November 19, 1943, were as follows: New Orleans 5:30 p.m. - clear, visibility 5 miles, light smoke. At 10:00 p.m. - visibility 3 miles, light smoke, visibility locally under one mile in patches and vicinity of drifting smoke. The terminal forecast for New Orleans, as issued by Bowdoin, was "ceiling and visibility unlimited." When asked what he based his terminal forecast on, he replied, "Well, the pressure system over that part of the country was high and rather flat, and I checked it off my work sheet . . . there was no possibility of any fog, so that relieved my mind of being any . . . real bad weather at New Orleans." He admitted having access to the United States Weather Bureau terminal forecast at New Orleans wherein smoke and restricted visibility were mentioned, and added, "but I do not read the Weather Bureau forecasts, as a general rule, because it would influence you one way or the other." When reminded that these Weather Bureau forecasts would be an indication or trend which should be of interest to him in his forecasting, he answered, "Well, I don't read them." He testified further that he had no knowledge of sources of local smoke at New Orleans, and therefore did not expect any. The special observations taken by the Weather Bureau at New Orleans at 10:40 p.m. showed the visibility reduced to three-quarters of a mile with a further reduction to one-half mile at 10:55 p.m. All such special reports are transmitted on teletype Schedule "A" into Atlanta. Mr. Bowdoin testified that the Atlanta Office of Eastern did not receive these particular special observations and his testimony was later corroborated by a letter from Eastern. However, subsequent investigation revealed that these special terminal observations had been received by the Atlanta Office of the Weather Bureau and the CAA Monitor Station on teletype Schedule "A" and as Eastern has a drop on Schedule "A", the reports were available to them. Photostatic copies of these specials, as received at Atlanta, were secured by investigators of the Board and are filed with the Docket Section.

Investigation revealed that even though war time restrictions had been lifted regarding routine procedure of reporting altimeter settings

in the clear to aircraft in flight, Eastern had not resumed this practice. However, the investigation did reveal that after the subject accident this procedure was resumed by Eastern.

Eastern's chief pilot, when queried as to what, in his opinion, was the value of requiring the first officer to call out airspeeds and altitudes to the captain during a landing (a practice general with air carriers), stated, "In our opinion it is not advantageous to do that on landing or we would have it incorporated in the manual as part of our procedure It is an unnecessary procedure." and added, "The more rules and regulations you lay down the more you will get broken."

Eastern's Operations

At the time of the accident, Eastern's Manual of Operations, which includes instructions and stipulations to flying personnel, was inadequate to insure maximum safety of their operations. One of the outstanding deficiencies of the manual and one which is applicable to the subject accident was that concerning "landing procedure." Eastern's manual did not list checking of the altimeter setting prior to landings as a duty for either the captain or first officer. Presumably, this duty had been assigned generally to the crew member actually manipulating the flight controls at the time. Subsequent to the accident, on December 3, 1943, Eastern forwarded to the Safety Bureau of the Board a copy of an amendment to what they termed their "Current Flight Manual," covering landing procedure. This amendment, after outlining the preliminary procedures such as lowering of the gear, maximum and minimum speeds, etc., listed eleven items to be checked by the pilot just previous to landing, and Number One of these was "re-check Kollsman setting." The testimony of Miles and Lohrke made it evident that neither had paid any attention to the altimeter setting, the indicated altitude or the airspeed indicator, while making an approach during the hours of darkness under conditions of locally restricted visibility.

All of the evidence regarding Eastern's operations, while being only contributory to the subject accident, indicated an inexcusable laxity of safety precautions.

Findings

Upon the basis of all the evidence available to the Board at this time, we find that the facts relating to the accident involving NC 19968, Eastern's Trip No. 12 on November 19, 1943, are as follows:

1. The accident occurred on or near Lake Pontchartrain, Municipal Airport, New Orleans, Louisiana, about 11:30 p.m., resulting in no injuries to the passengers or crew members. The aircraft received major damage.
2. At the time of the accident Eastern held a certificate of public convenience and necessity and an air carrier operating certificate authorizing it to conduct the flight. Both certificates were currently effective.

3. Captain Miles and First Officer Lohrke held certificates authorizing them to perform their duties on the subject flight.
4. The aircraft, NC 19908, a Douglas DC3, was currently certificated as airworthy at the time of the accident.
5. There was no evidence of failure of any part of the aircraft prior to impact.
6. Eastern's Flight 12 of the subject date originated at Houston with New York as its final destination. It departed from Houston at 9:20 p.m. in accordance with company procedure, with the first stop scheduled at New Orleans.
7. The operation of the flight was normal until it arrived in the vicinity of the New Orleans Airport where it encountered local instrument weather caused by unusually dense smoke.
8. Although the restricted visibility was reported by the United States Weather Bureau in special terminal weather reports issued at 10:40 p.m. and 10:55 p.m., and these reports were available to Eastern's meteorologist and dispatcher at Atlanta, the captain was not advised of the condition until he arrived over the airport to land.
9. Eastern's meteorologist and their dispatcher at Atlanta were careless and lax in their forecasts and responsibilities.
10. The manual of operations in use by Eastern at the time of the accident was inadequate.
11. The captain attempted a landing approach at night under conditions of locally restricted visibility due to smoke, without making use of the flight instruments with which the airplane was adequately equipped.

CONCLUSIONS

The nature of the damage to the landing gear and the front crankcase of the left engine precluded the possibility of its having been caused by propeller failure. There is also no evidence that a collision with the seawall or with a bird in flight had occurred. From all of the evidence it appears that Captain Miles descended on his landing approach into the smoke and after proceeding in a slight left turn, the airplane struck the water with the left propeller tips and the left side of the landing gear. It could not be determined from the damage to the landing gear strut whether the gear was being extended or retracted at the time of impact with the water. In either case, it is apparent that the gear was not fully extended at that time.

PROBABLE CAUSE

Misjudgment of altitude over the water while making a night landing approach in local instrument weather.

CONTRIBUTING FACTORS

1. Inattention of the operating crew to instruments, especially the sensitive altimeter, during a night approach in low visibility.

2. Failure of the carrier to prepare and enforce compliance with an adequate manual of operations stipulating procedures to promote safe operation.

APPROVED:

/s/ L. Welch Pogue
L. Welch Pogue

/s/ Edward Warner
Edward Warner

/s/ Harilee Branch
Harilee Branch

/s/ Oswald Ryan
Oswald Ryan

/s/ Josh Lee
Josh Lee