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A REPORT ON B-908 AIRCRAFT CRASH ACCIDENT

VIEWED FROM

THE ANGLE OF AVIATION MEDICINE

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B-908 Aircraft Crash Accident Viewed from the Angle of Aviation Medicine

A. Background:

Scheduled round island flight B-908 with 57 persons on board crashed at about 5:40 p.m. on June 20, 1964, a few minutes after taking off from the Shuinan Airport, Taichung. There were no survivors. Based on tower report from Shuinan Airport afterwards, taking off time was at 5:35 p.m.

B. Taipei Flight Operations personnel on duty telephoned me around 6:00 p.m. of 20 June 1964 to advise that scheduled round island flight B-908 lost contact. Bringing immediately a nurse and emergency equipment, I reported to Flight Operations at Sungshan Airport to standby and wait for instructions. The Company, besides sending an airplane to search, also kept constant contact with the control authorities of CAA. It was learned later that B-908 crashed near Fengyuan, but the actual condition was not clear. As appointed by the Company, I got on a special plane and flew to Kungkwan Airport, near Taichung, with other Company personnel and the Chief of Flight Safety Division, CAA, enroute to the site of crash. Take off time of the special plane was at 10:30 p.m. that night.

C. A briefing given by the CAF officer of the Kungkwan Airport after arrival at 11:30 p.m. of June 20, 1964 included the following points:

1. The CAF sent a helicopter to the site of crash right after they noticed the airplane which was flying towards the north made a left turn and then suddenly crashed.
2. A sketch of the crash site was shown (see Attachment 13 which is compiled from the sketch shown by CAF officer plus his information given during the briefing.)
3. They did not hear any sound of an explosion.
4. The wings of the airplane were badly damaged.
5. The tail was visible.
6. The bodies on board were scattered over an area of 200 meters in diameter.
7. Two engines were visible, one on each side of water ditch.
8. There were no survivors.
9. The scene was being kept undisturbed by police.
10. One boy on the ground was injured by a piece of the fragments from the crashed airplane. His injury was mild and returned home after medical treatment.

D. Inspection of the site of crash that night:

After the briefing, all went to the crash site under the guidance of a CAF officer. Although the illumination of that site was poor, a preliminary inspection was made by a team including CAA officials and CAT personnel. As a Company doctor assigned to join the team by the Managing Director, also as a Medical Examiner of CAA and Medical Examiner of FAA and FAA Appointed Medical Investigator on aircraft accidents, I paid particular attention to the search for survivors and to observe from the angle of aviation medicine all facts to help in understanding the cause of the aircraft accident. As far as could be determined with a flash-light, there were no survivors. Owing to the absence of a procurator and coroner in charge at that time, lack of any indication for possible survival such as voice calling for help, movement of any portion of the bodies as far as we could see and severity of the crash of this nature, we had to give up our attempt to search for survivors or move the bodies, but some pictures were taken by the Company photographer for future reference. Later, at 3:00 a.m. June 21, 1964 by the request of the police, the power company set up illuminating lights at the west side of the site of crash, we saw better the condition of the scene. We noticed that: (1) Every seat within our sight was very badly distorted, but the safety belts were in good condition. (2) Within our sight a few of those occupants were still attached to the seats by the seat belts or near the seats (see Attachment 1). (3) We noticed two empty seats intact; the safety belts were in good condition but unlocked (see Attachment 2). (4) It was our preliminary impression that deaths of the occupants were due to severe injury to the head and extremities, resulting from severe impact force with very few body intact. All the bodies seen that night appeared to have the general pattern of injuries which was observed in detail the following day. (5) There was a rope, shown in Attachment 1, partly covered by a seat, touching the bodies in the seat. This raises a question of who placed this rope in this position and for what purpose. (6) As we learned later from the laborers who recovered the bodies, there were only 8-10 bodies still remaining in the seats. It is possible that the authorities removed some of the bodies from the seats prior to recovery but this does not seem likely. As I learned from the newspaper (Union Newspaper dated 22 June 1964) it was reported that during the period after the crash and before the first time arrival of procurators that night (June 20, 1964), some of the deceased bodies had been moved and turned over by some people. It was also learned later from the Chief Pilot and other pilots that usually after taking off from Taichung Airport in the south direction under good weather conditions the light signal of "fasten safety belt" will be shut off in about 3 minutes time by the captain. It means that passengers may unlock the belt at that time. But some passengers usually do not unlock the belt, either due to having not noticed the shutting off of the light signal or rather keeping the belt locked intentionally.

E. During the meeting with the Director of the Taichung District Police at Fengyuan at about 4:00 a.m. June 21st (also attending were Director and Deputy Director of the Police Office, CAT Managing Director, VPGA and myself) we were asked whether we would need men to help to carry the remains when the whole team started to work at dawn. We said we did although we knew Tainan Maintenance Base had sent 10 laborers to help. We were also told that the coroners, procurator, etc. would be at the site of crash at 6:00 a.m. The Police Director said he had ordered his men to keep the scene untouched until the work started. So, to the best of our knowledge, up to this time, there was no unit which had come

to check the bodies directly. I believe CAA representative who entered the scene with us at the same time paid attention only to the aircraft but not the remains because he did not mention these to me at all that day.

F. Identification of remains (7:00 a.m. through 3:00 p.m. June 21, 1964)

1. Arrived at the site at 6:00 a.m.
2. I first made a copy of the name list of all persons on board B-908 for Taichung-Taipei from the original manifest held by Mr. Chang of T.T.S. (our agent at Taichung). On that day there were 52 passengers on board. (There are 53 seats for passengers and 2 seats for stewards, a total of 55 seats all with safety belts, in the passenger cabin). Diagram of the seats on board C-46 B-908 is Attachment 14.
3. The Managing Director told me that U.S. Navy will send a flight surgeon, etc. and helicopters to the site of crash to help identification of bodies and transporting the bodies to Kungwan Airport.
4. The U.S. Navy helicopter arrived and landed at the dry rice paddy left to the farmer house (Tai Fan Road No. 2 Mr. Li's house) which was being used as temporary control center. I suggested to have the helicopters landed over the area near the railway leaving the dry rice paddy for handling of bodies recovered. (See Attachment 3, which was taken from the helicopter by the U.S. Navy.)
5. The personnel of the local court including two procurators, two assistants 10 doctors and some assistants arrived at about 7:30 a.m.
6. The work to recover the bodies immediately started. Laborers (10 from Tainan Maintenance Base and 14 hired by the local police) were divided into two groups. One group were sent towards the West side, one group were sent towards the East side. At this time police lines broke and people poured into the area.
7. Procurators, coroners, doctors including U.S. doctor, many victims' relatives and newspaper men all concentrated at the dry rice paddy.
8. The police and the Company personnel prepared the white cloth, blankets, rubber bags, etc. and arranged to accept the bodies recovered (see Attachment 15).
9. Identification was made by the following methods:
 - (A) Clothes
 - (B) Any attachments
 - (C) Any identification cards including tickets, etc.
 - (D) Help of relatives etc.
 - (E) Doctor Westbrook (flight surgeon of Navy Station Hospital) helped the coroners to identify Caucasians. I helped the coroners to identify all the bodies. The coroners took a detailed description of each body.

10. Whenever a body was identified, the body was put into the rubber bag and two name labels attached on either ends. Belongings removed from bodies were put in a paper bag prepared by the court under the watch of the procurators and handed to the police for safekeeping.
11. An impasse existed when the first bodies were ready to be airlifted from the scene and the procurator wouldn't let them go without someone signing. To get things moving again, the Managing Director agreed to sign for the remains. When a rubber bag was ready to be transported, I prepared a receipt bearing the name of the deceased and had it signed by the Managing Director. This had to be given to the Procurator to indicate that we received that person's body from him. (To save time all the receipts had been prepared beforehand according to the passenger manifest.) Then, the body was allowed to be moved to the helicopter and then airlifted to Kungkwan Airport.
12. Eventually 57 bodies were recovered. The police checked that there was no body missing and the procurators announced all the bodies on board recovered.
13. The U.S. Navy took 18 Caucasian bodies away, leaving the 39 remains of persons of the Mongoloid race with us. Among these 39, only 32 could be identified.
14. The body of Captain Bengee Lin was checked twice by the coroners. The first time it was just a routine examination. The second time, I noticed that they performed a partial autopsy on his right leg.
15. Seven bodies remained unidentifiable. Referring to the manifest of passengers, we could only assume that they were the bodies of:
 - (A) Tseng Yang (male)
 - (B) Wang Cheng Yi (male)
 - (C) Shih Chin Ling (female)
 - (D) Chow Wun Mei Lee (female)
 - (E) Chu Chiu Chin Cheu (female)
 - (F) Mrs. Best (female)
 - (G) Helen Lee (female)

(Note: One of the seven unidentifiable bodies looked like a Chinese boy.)

The fact that these persons were not identifiable is positively proven by the fact that the receipts I prepared in their names could not be surrendered to the procurator and are still in my possession. In these cases, receipts with name unknown were issued and labeled with special numbers attached to the rubber bags.

Later, at Kungkwan Airport, one American, Rev. Downs, was transferred to the group that remained on Taiwan to be airlifted by us to Taipei, making a total of 17 which were shipped to OKI by the U.S. Navy.

G. Preparation of Death Certificates on the 22nd of June 1964. During the process of preparing the death certificates, the following things were recorded:

1. Because of the lack of personnel and urgency of this matter, we were allowed to prepare all the death certificates and the necessary copies by ourselves (including Donald Shen and later H. Y. King sent from the Taipei Head Office to assist with this work). However, we were instructed that name of the dead, address and individual identification card number must be entered. We first tried to prepare according to the original copy of the manifest obtained from our Taichung Agent, but the manifest does not provide adequate information and there were a few unidentified, so we had to check with various stations.
2. By noon on June 22 the procurator, Mr. Liao Mo-Yung, told me that he received instructions from Taipei that the bodies of Tseng Yang and Wang Cheng Yi, naming the label numbers, had been identified at the Chi Loh Funeral Parlor and Taipei authority asked permission for immediate cremation. The procurator said he already authorized cremation.
3. That afternoon, we were informed by Mr. P. K. Mei that other Chinese (4 ladies and one boy) were identified and the corresponding number assigned to each body was mentioned too. The boy was in fact on the manifest under the name of Mrs. Best.
4. Therefore, we had all the Chinese remains identified and to each certificate a corresponding body-injury record was attached.
5. Original information regarding 3 are kept in file.
6. Without the efficient help of procurators, clerks, coroners and others, we could not possibly complete this kind of work that day.

H. Review of the records of injuries of dead:

1. During the identification of those dead at the site of crash on June 21, 1964 and at the time of reviewing the records the next day (June 22, 1964) in the procurator's office with coroner, we obtained a general impression of the injuries of the majority of the dead. However, for the purpose of accuracy, a review of part of the records concerning the injuries was done on July 1st and 2nd 1964 at the Taichung Local Court Procurator's office.
2. Records of the nature of injuries of some dead which we wished to study were carefully reviewed.
3. Only one was not reviewed because the record was sent to the doctor to complete. That is the record of Mr. Y. K. Chang. Because I did check Y. K. Chang at the site of crash I know very well his type of injuries, similar to the general pattern which will be described.

4. Generally speaking, among those 57 dead, all except one showed a more or less regular pattern of injury although they varied in extent and severity. The pattern is:
- (A) Bad injury or loss of part of the head including the brain and scalp.
 - (B) Simple or compound fracture of the extremities.
 - (C) In some cases, fracture of the ribs and/or arms or thigh.
 - (D) The lower part of the chest and the whole abdominal region are in good shape.
 - (E) This pattern of injury also applies to the cockpit crew members.
5. However, when I mentioned Wang Cheng Yi to the procurator, 11 days after the accident at Taichung, he and his assistant immediately told me that the wounds of this man were very peculiar, because his body was mainly injured over the chest and abdomen and they saw all the internal organs coming out. The reason they recall this so clearly is because he was the only one with this type of injury.

Of interest also is that this body was the only one without clothing. The whole body was covered with mud. His height was about 160 cm. (estimation only).

6. During this survey, it is interesting to notice that Tseng Yang, who had the general pattern of injuries, and had his white clothing on, but he was the only man who had no single piece of paper in his clothing for identification.

I. How were these two men Tseng Yang and Wang Cheng Yi identified in Taipei?

According to the records of the Personnel Division, a certain unit of the Chinese Navy sent two officers to Taipei carrying an official letter addressed to the Company. They identified Tseng Yang without difficulty at the morgue.

As for Wang Cheng Yi, his brother came over and identified him, apparently by elimination (last body unidentified).

J. Location of the body of Wang Cheng Yi:

I learned that Capt. Teeters, Chief Pilot, paid special attention to the cockpit crew at the beginning when people were searching for their bodies at the crash site and that he noticed another body lying on its stomach near the pilots. From this observation and the statements (attached) obtained by the Security Division on the finding of a body with unusual injuries it was determined that the body of Wang Cheng Yi was probably located near the bodies of the pilots.

See Attachments as follows:

- 1. Diagrams of the injuries of Wang Cheng Yi (Attachments 8, 9, 10 and 11).
- 2. Estimated position of the body (Wang's) as related to the captain and co-pilot and other aircraft occupants (Attachment 12).
- 3. Diagrams and photographs showing general pattern of injuries (Attachments 4, 5, 6 and 7).

According to the Special Assistant to Vice President Flight Operations observation at that time, there were 6-7 bodies in the water ditch to the east of the pilots' bodies. Also according to his observation at a distance about 6 feet away from the bodies of the captain and the co-pilot there was another body with his back up while the other bodies were far away to the east from the pilots even though they were noticed in the ditches. This point is helpful to explain the type of injury Wang suffered.

- K. As mentioned before, Wang was the only one entirely free of clothing but covered with mud when discovered. According to the statement on Page 16, Aviation Medical Safety Training: Course Content Materials for Training Naval Flight Surgeons - Human Engineering (U.S. Navy Training Device Center): "The impact with the water surface, following such a fall, would cause injury to internal organs and extensive loss of clothing of passengers in forward position." This may suggest that Mr. Wang's body hit the water surface and then came to the side of the ditch where it is full of mud.

Compared to the injury of other bodies in the water ditch, the injuries suffered by Wang to his chest, abdomen, internal organs and severe fracture of left thigh indicated that very possibly Wang was in a standing position at the moment of the crash and his body collided with certain hard objects of the aircraft.

L. Autopsy performed on Captain Lin:

1. A partial autopsy (examination of the dead tissue) was performed on June 21, 1964 at the scene by the coroner. We have no information concerning the result.
2. A second complete autopsy was performed on June 30, 1964, including complete examination of the body with X-rays.
3. Result of the complete autopsy was announced by CID in the newspaper on July 12, 1964. The CID reported death was due to sudden impact with injuries to many parts of the body, that X-rays also just show extensive and multiple fractures of various portions of the body, and that tissue examination (autopsy) and X-ray examination indicate no gunshot injuries. There was no cardiac infarction or necrosis which would lead to sudden incapacity in the handling of the aircraft, according to the CID report.
4. However, from the aviation medicine point of view, this kind of autopsy cannot tell the mental condition or psychological condition of the pilot at the moment prior to plane crash. The brain tissue was entirely lost. This kind of autopsy cannot even tell any organic condition of the brain tissue, due to any reasons, which may lead to sudden loss of consciousness or fainting spell. Also the autopsy was performed over 10 days after the death and the body already started decomposing, so its reliability in providing information is doubtful.

M. Physical conditions of the pilots:

1. Captain Bengee Lin, aged 38, had remained in good and healthy condition since he joined the Company in 1950.

2. Mr. M. H. Kung, aged 47, had remained in good and healthy condition since he joined the Company in 1948.
3. Captain Bengee Lin held a CAA ATR License No. 10200 with ratings for C-46 and DC-4 aircraft. He had regular physical examinations every six months including yearly electrocardiogram and blood chemistry tests, in addition to the requirements prescribed by CAA. Captain Lin's latest physical examination for airman was conducted by Dr. W. S. Cheng on Feb. 27, 1964. He was found to have met the A class requirements for an ATR as prescribed in CAA regulations No. 19. According to Company regulations whenever a pilot does not feel well he must report to the Company clinic and the Company doctor decides whether the pilot should go fly. Particular attention is paid to the use of medicines. The "Guide to Drugs Hazards in Aviation Medicine" prepared by FAA in 1962 is strictly followed.

In the past six months, (1) Captain Bengee Lin had one attack of gastritis on Feb. 26, 1964. He recovered after treatment and four days rest. (2) He had mild abrasions on his knee (this time he was not examined by me and the record does not show which knee) on April 3, 1964, and recovered after treatment and rest for four days. (3) His last visit to the Company clinic was on June 11 and 12, 1964 for the regular cholera inoculation. Due to slight reaction, which is not unusual he was granted one day off.

Up to June 20, 1964, Captain Lin had 11,881 flying hours. Since Jan. 1, 1964 to June 20, 1964, he was on duty 408 hours and 22 minutes.

Duty time from June 1, 1964 through June 20, 1964 are shown in Table I. By duty time, we mean the time starting when the individual was picked up at his house until the return of the airplane to the ramp after completion of the flying schedule. The flight crew on board B-908 had about 4 hours layover at Makung, which was adequate for lunch and rest during the day. CAA and ICAO permit a pilot to fly a maximum of 8 hours in any continuous period of 24 hours and 100 hours in any continuous period of 30 days. 8-12 flying hours are permitted in a continuous period of 24 hours if the flying is intermittent and followed by a 24 hour period of rest. Flying hours, as defined by ICAO, is the time beginning from the movement of the aircraft under its own power for takeoff until the aircraft comes to rest after landing.

So far as we know, in the last 6 months, Captain Bengee Lin was free from worries. He was mentally stable. He had no accident record since he joined the Company. I have observed his flying behavior many times under different difficult flying conditions and found his flying habit good and careful.

4. Mr. M. H. Kung held a CAA Sr. Commercial Pilot License No. 20018 with ratings for C-46, C-47, DC-4 & PBY-5A. He had regular physical examinations every six months including yearly electrocardiogram and blood chemistry tests, in addition to the requirements prescribed by CAA. Mr. Kung's latest physical examination for airman was conducted by Dr. W. S. Cheng on Jan. 4, 1964. He was found to have met the A class requirements for Sr. Commercial Pilots as prescribed in CAA regulations No. 19.

In the past six months, he visited the Company clinic on four occasions, two times for immunization injections, one time for an infection of his gums, for which he received treatment and rested for two days, and one time for constipation which rendered him to be grounded for two days.

Up to June 20, 1964, Mr. M. H. Kung had 13,074 flying hours. Since Jan. 1, 1964 up to June 20, 1964, he was on duty 406 hours and 45 minutes. Duty time from June 1, 1964 through June 20, 1964 are shown in Table I.

So far as we know, Mr. M. H. Kung was free from worries. He was mentally stable. He had good flying habit. He had no accident record since he joined the Company.

"Accident" is used according to the definition in ICAO Annex 13.

- N. I noticed that a photograph (Attachment 16) taken at the crash scene by the Security Division of a body identified by them as the body of the pilot, Bengee Lin, shows a small hole at the right side of the face and shows that approximately from that hole a large part of the front of the face and skull was thrown open and to the left and upward.

A shallow hole at the back of the neck of the body of Bengee Lin noticed at the first partial autopsy was not reported in the second complete autopsy, on 30 June, 10 days after the first autopsy. A calcified spot on a lung, which Bengee Lin had for years, was also not mentioned in the CID autopsy report. Furthermore, American experts report that it is not possible to determine from the X-ray films of his body whether he did or did not suffer gunshot injury.

One three inch spike, the source of which has not been identified, was found in the ashes remaining after the cremation of the co-pilot, M. H. Kung.

From what we noticed at the crash site, passengers having the right side seats suffered lighter injuries. This was true also for those bodies in the water ditch. We also noticed that the plane crashed with 25°-30° angle facing west..

There were 3 seats in the cockpit and 55 seats in the passenger cabin. All seats had safety belts.

It is reported from various sources that some people entered the crash site during the period after the crash and before the arrival of the police force. This raises the question of whether or not anything was tampered with at the crash site during the period.

All these points should be carefully considered by investigators.

The main purpose of accident investigation is to try to find out all facts concerning the accident to prevent repetition of the same kind of accident. All parties concerned are requested to cooperate wholeheartedly.

With the crash of B-908 which is most unfortunate to the country, to the Company and to the victims on board, the extreme painfulness in my heart could not be expressed in words.

TAB. I

<u>DATE</u>	<u>AIRCRAFT NO.</u>	<u>DUTY TIME</u>	
		<u>B. LIN</u>	<u>MH KUNG</u>
1 June	B-1004	10:25	
1 June	B-908		11:19
2 June	B-1004	10:27	10:47
3 June	B-908		11:42
4 June	B-908		11:32
6 June	B-1004	10:37	
6 June	B-908		11:12
7 June	B-1004		10:49
9 June	B-1004	10:58	11:08
10 June	B-1004	10:53	
12 June	B-1004	10:53	11:03
13 June	B-1004		10:33
15 June	B-1004		10:43
16 June	B-1004	10:45	
16 June	B-908		11:17
17 June	B-1004	10:46	
19 June	B-1004	11:37	11:47
20 June	B-908	10:28	10:33

Remark:

B-1004 is DC-4 (four engines land plane)
 B-908 is C-46 (twin engines land plane)

Information from the Security Division

11 July 1964

LIU A Chi, owner of a coffin shop at Taichung City, was interviewed at 132 Section 2, San Min Road, Taichung City. He stated, "On 21 June 1964, many laborers were hired to work at the aircraft crash site from Taichung, Fengyuan and the vicinity of the site. Two laborers hired by me found a body with belly broken at the west side of the small stream. When I watched them moved the body to the place where all bodies were laying, I saw the intestine of the dead was dragged out from the dead's belly on the ground 5 or 6 steps away. In pity of the dead, I picked the intestine and put it in the dead's belly. I didn't pay attention to the dress of the dead but I remember the body was hardly to be recognized as male or female. Since there were so many bodies, my attention was drawn to the other ones. I remember this one particularly because I was very sorry for the dead when I saw it. I didn't see other corpse with broken belly. This one was found near the nose of the aircraft."

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LIU A Chi was interviewed again on the second day. He stated, "I have contacted the two laborers last night. They said that they saw the corpse with broken belly being carried over to a flat place near the nose of the aircraft from the other side of the small stream by two persons in blue uniform (presumably to be Company laborers from Tainan Main Base) who then carried the corpse from the flat place to the dry rice paddy field for inspection. It was on the half way from the flat place to the inspection area when I saw it. Actually my two men didn't know the exact location where the body was found. They also refused to be references. I think it is better to ask the two persons in blue uniform."

LIU A Chi refused to introduce other laborers who also saw the body.

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LI Tsung Hai, employee of Taichung Central District Cooperation Funeral Service Department, residing at No. 56, Chi Kuang Street, Taichung, was interviewed in the office which is his residence too. He stated, "It was about 0900 hours in the morning of 21 June 1964, I took one driver and two laborers to the aircraft crash site. Due to the application of a pass, we were late when we reached there. At that time, I saw some of the corpses were already displayed on the field. Our job was to bring white cloth and remains bags to cover the corpses. Our job was done around three o'clock in the afternoon. Then I left the site. I can remember fairly well that among the corpses one was quite strange as the dead's belly was broken and things inside the belly was all out. I don't remember whether the dead had clothes on or not. It was displayed on the field with others."

* * * * *

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SU Feng, Laborer of Taichung Central District Cooperation Funeral Services Department, stated, "Yes, I saw a corpse with broken belly and intestines out of the belly at the place the corpses were displayed on 21 June 1964. The two legs of the dead were incomplete. I didn't notice the dress of the dead because I was busy covering the other corpses. I know nothing else of the body."