REPORT ON THE CAUSE OF DEATH OF A CALIFORNIA CONDOR

It was reported to the regional office in Fresno by Mr. G. B. Coigny of Pinehurst that he had in possession the entire carcass of a condor which he had observed fall to earth dead on May 24, 1965. The bird was obtained by Department personnel, refrigerated and transported to the Field Station on May 25, 1965 to be examined for cause of death.

Mr. Glading notified Dr. Alden Miller of the University of California who would be present on the morning of the 26th to cooperate in the examination and who would in fact prepare the skin for a future mount by a taxidermist.

Dr. Miller proceeded to make all essential measurements and all external observations were recorded. The bird was a juvenile probably going into its second year. At this time the gullet was opened and 1.25 pounds of fresh appearing flesh was removed. This flesh was mixed with what appeared to be wool and it was decided that the bird had eaten from the carcass of a sheep shortly before death. This material would later be examined for the presence of a possible toxic agent.

Following this the bird was x-rayed by Dr. Bell, D.V.M. of Carmichael to determine if the bird might have been shot. Two plates exposed at this time were negative for the presence of shot or bullet or evidence of broken bones. No x-rays were taken of the neck or head since any wound would be readily apparent when being skinned. Prior to the skinning process, actually at the time of removal of the food from the gullet, it was noted that blood was oozing from the beak region. Inside the mouth were some small clots of blood, which on microscopic examination showed nucleated red cells and there

was no doubt this was blood from the condor and not from the meal it had eaten.

Dr. Miller then proceeded to skin the bird. When the skin had been removed up to the wings and these were disarticulated it was apparent that hemorrhagic areas were present in the musculature and in the skin in the areas of the wings, similarly on both sides, with further reflection of the skin past the region of the neck and shoulders it was apparent that bruised and hemorrhagic areas occurred there also (Figure I). The skinning process was completed and the head severed from the neck and left intact with the skin. At this time the skin was examined for possible shot wounds. In the center of one of the bruised areas, the right side, a small hole was found. The feathers on the opposite side of this hole showed some staining with blood. It was speculated at this time that this might be the exit hole of a small caliber low velocity projectile. No hole could be found on the left side in the bruised area nor in any other part of the skin. The carcass was then examined, externally a probe was used to find a possible projectile track or wound but none could be found. The abdomen was opened and the viscera removed. A considerable amount of blood was present in the abdomen and chest but because of the advanced degenerative changes which had occurred definite visual determinations were difficult to assess. No gross evidence of damage to organs was noted. The heart was intact. The same was true of the other organs, liver, stomach, intestines, etc. All of these tissues were preserved for further examination, either pathological or toxicological. Further examination showed what appeared to be a penetrating wound in the skeletal tissue apparently corresponding to the supposed exit hole in the skin, a small rib-like bone was severed from its attachment on the breast bone. This seemed to

further substantiate the theory of the bird having been shot. Mr. Glading and Dr. Miller left at this time with what probably was a premature conception of the cause of death. This will be explained further along in the text.

The stomach had been opened and it contained a small amount of food material, which consisted of some small chunks and shreds of flesh and a greater amount of hair, which was determined to be 90 percent deer hair and 10 percent sheep wool. Also present were the hoofs from a fetus estimated to be of 150 to 160 days old. This food material, and that from the gullet were to be examined for possible toxic material.

Certain other observations were made of the carcass and it became obvious that the theory of shooting may have been premature,a projectile passing through the bird in such a manner as to not break bones would have to penetrate also some of the viscera, particularly heart and lungs (Figure 2). Penetration in any other area would have to pass through the boney structure. None of the findings at this time were consistent with a theory of shooting.

The following day, May 26, the carcass and skin were given a detailed and minute examination. Muscles were dissected from bones in an attempt to find evidence of a shot wound. There was no evidence that a projectile had passed through them. Even over the area of the supposed wound in the right side of the chest the muscle when carefully replaced was negative for a penetrating wound. The neck and head regions were carefully examined, no wound could be found. The areas of massive bruising referred to earlier were carefully examined. All of the musculature of the back was hemorrhagic, even over the kidney region. The back of the neck just above the shoulders was bruised. It was apparent that the bird had sustained severe damage to the entire

back region from the effects of a fall as will be explained later.

The trachea was opened and no blood was seen. It was apparent that no hemorrhage had occurred from the lungs which usually occurs if they are damaged by a penetrating wound. Examination of the head showed no gross damage. It was apparent that the blood observed in the mouth earlier had come from the naris. Some brain material could be removed and no gross evidence of hemorrhage was seen. Careful examination of the lungs at this time confirmed the fact that physical damage had not occurred. The penetrating wound in the skin was examined with a dissecting microscope and it did not have the appearance of a shot wound. The edges were smooth and clean and did not have the usual hemorrhagic ring. The small amount of blood on the feathers could have been placed there in the process of manipulation of the skin at the time of the previous examination. This was a careful and detailed examination. There was no evidence found that could support a gun shot theory. At this time a preliminary report from the Department of Agriculture laboratory indicated that the flesh from the gullet was negative for strychnine. This poison had been considered as being suspect in the cause of death.

What then, did kill the condor? The following narrative, I believe, will serve to give a plausible explanation and I think the only reasonable one. As stated earlier Mr. Coigny saw the bird fall to earth and when he approached it was moribund. Mr. Coigny was interviewed by Mr. Dave Selleck of Region IV on June 1 to obtain additional observations and information which might be pertinent. Mr. Coigny's observations are as follows.

While traveling on the paved road near Pinehurst he observed what he determined to be a condor making a series of circles at low altitude. Mr. Coigny stated that the bird appeared to be soaring normally and in his opinion the bird was having difficulty in gaining altitude because of the coolness of the day and lack of thermals to give lift. High tension wires cross the road at this area. The bird was observed to be near the altitude of these power lines. Mr. Coigny then stopped his cycle to observe the bird which at that moment disappeared behind a large tree near by and was out of sight for a second. Mr. Coigny, his cycle stopped, looked back in time to see the condor hurtle through the air in a downward trajectory on its back with the wings folded and then fell about 40 feet and landed, as Mr. Coigny said, on the back of its neck on the pavement with a loud "plop" clearly audible to him and a neighbor woman some small distance away. No other person was in the area nor on the road at this time. Mr. Coigny stated to Mr. Selleck that he was pretty sure the bird had hit the wire but he actually did not see this happen. Mr. Selleck said Mr. Coigny seemed to be a conservative and reliable gentleman not given to overstatement. Another factor was revealed at this time. Not too far up the road was the carcass of a deer killed by dogs several nights before. It was Mr. Coigny's opinion that this carcass had attracted the condor which may have in fact fed on this carcass previously as indicated by the deer hair in the stomach.

The bird was probably not killed by hitting the wire since there was no evidence of its having hit a wire solidly. The probability is that it was upended by the wire and unable to recover fell heavily to the road, sustaining

fatal injury. The extensive bruising indicates this; bleeding from the mouth would indicate some kind of head injury. I believe the kidneys were disrupted because in this area there is not much musculature to act as a cushion. The small bone in the chest could have been severed at this time. There is still another possibility, although no burned areas were found it is possible that the bird may have received some voltage, such an occurrence could for instance cause stoppage of the heart or other derangement, enough to cause the bird to fall.

In my opinion this is the most plausible explanation. In the absence of evidence of gun shot, and not finding some toxic agent I cannot see any other reason for the death of this condor.

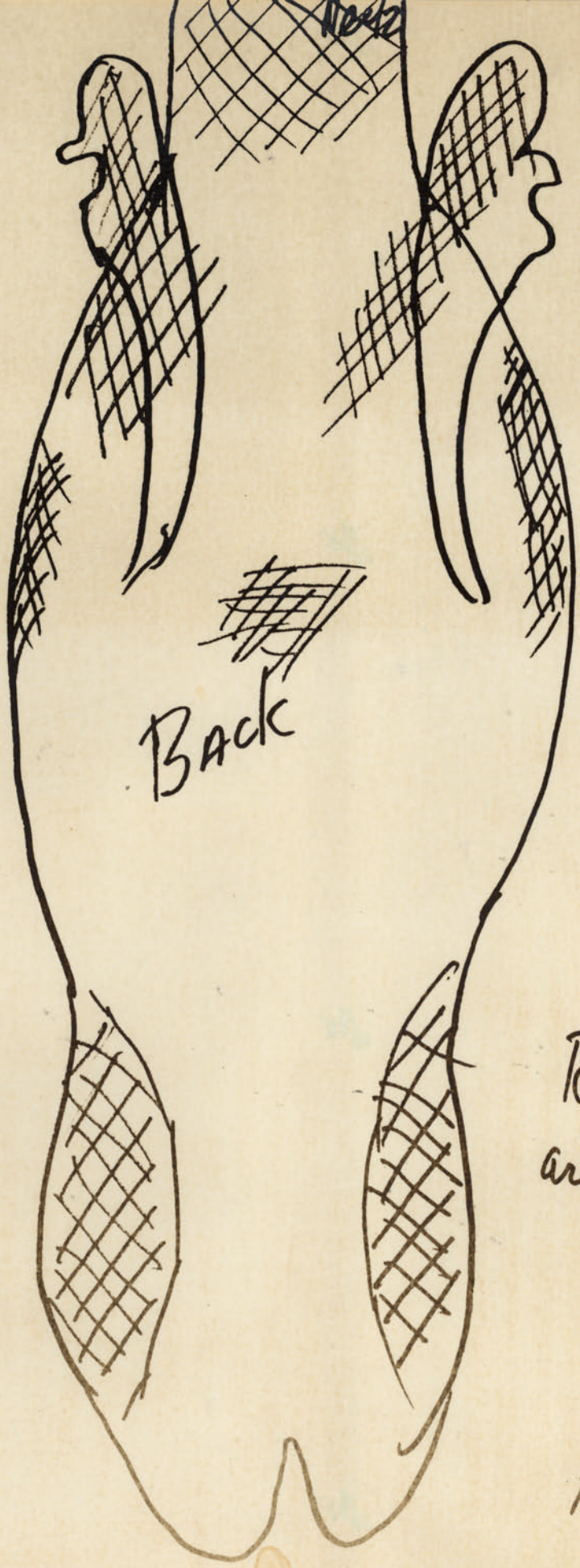
There had been some concern over the fact that Mr. Coigny had inserted wires in the wings to hold it up for photograph. Apparently these wires were not inserted through the tissue but tied around the wings. Another wire was looped around the neck to hold the head up but this again did not penetrate the tissue.

Further toxicological determinations are to be made on the food items and tissues by the Denver Research Laboratory. Whether these findings, whatever they may be, will have any bearing on the death of the bird cannot be known at this time.

At the original autopsy the sex of the bird was not determined since organs were not apparent. Later careful dissection under magnification showed that no testes were present, and since it was a juvenile, development of the ovaries may have been slight or completely obscured by degenerative changes. I believe that had it been a male the testes could have been seen. On this basis I would consider this bird to be a female.

Oscar A. Brunetti
Assistant Microbiologist
Attach. - 2

June 4, 1965



Red hatched indicates areas of bruising

Fig I

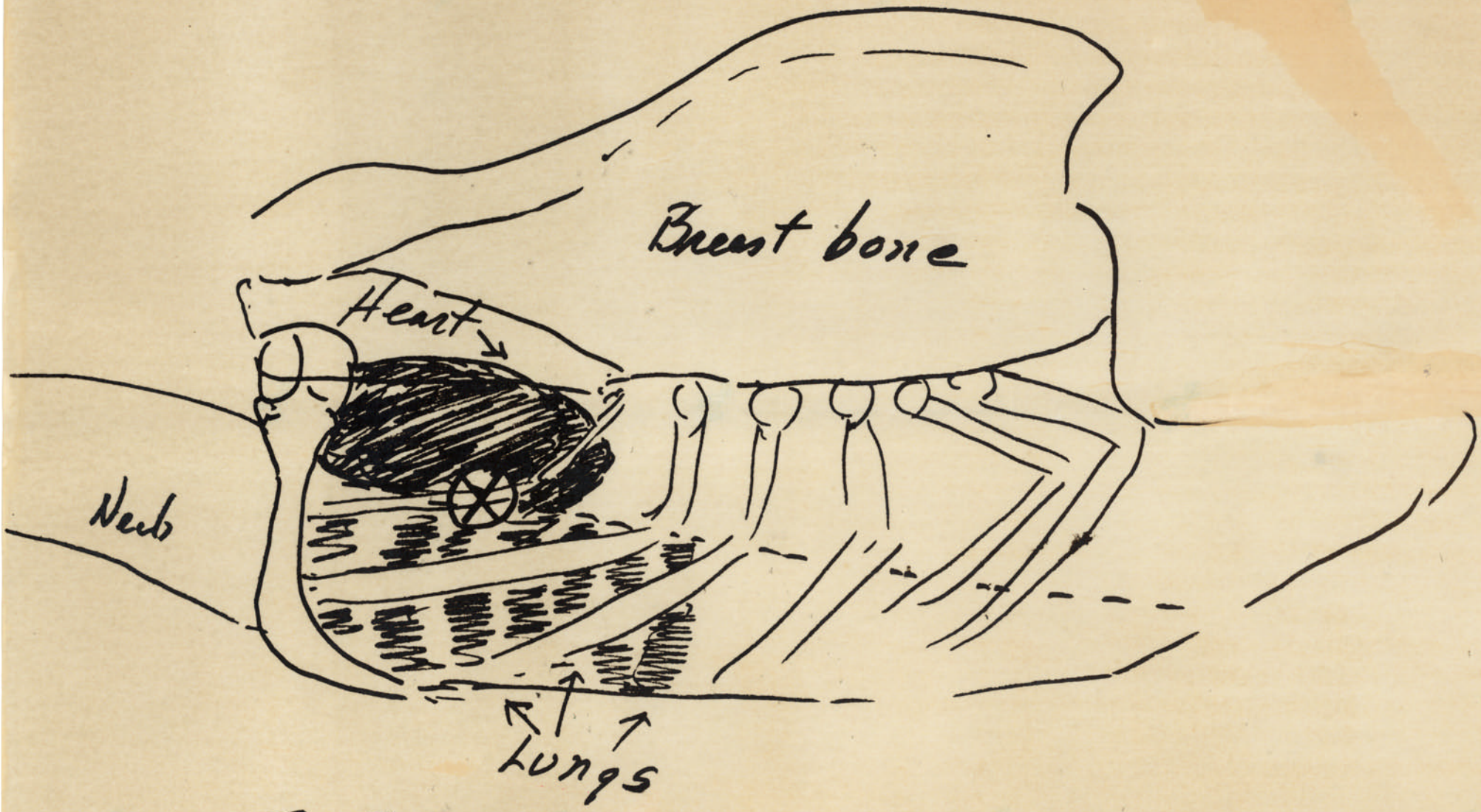


Fig 2