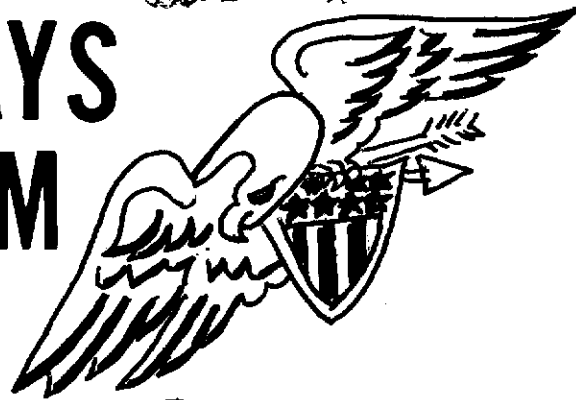


# HAPPY HOLIDAYS TO ALL, FROM



## ABATE of Oregon

### The Hangman's Noose Analogy

By CDR E. J. Colangelo, MC, USN  
Naval Safety Center

An analogy based on the similarities of the hospital transport (APH-6) aviator's protective helmet and the hangman's noose points up some interesting relationships to aircraft-accident investigation, and to the associated traumatic pathology.

#### The Hangman's-Noose Analogy

The inferior edge of the helmet, when visualized as part of the continuous circle completed by the nape strap and the chin strap, forms a loop that can be likened to a hangman's noose. The analogy might be further extended to include the lesions made about the neck by the straps or the edge of the helmet, paralleling the abrasions and contusions that might be associated with a rope having encircled the same structures. When the knot is situated at the side of the head (subaural), such a hangman's noose produces fractures of the base of the skull, tending to extend bitemporally through the basisphenoid.<sup>1</sup> When the knot is situated anteriorly and beneath the chin (submental), the hangman's noose causes a fracture dislocation at the axis. Characteristically the posterior arch is fractured and, interestingly enough, the odontoid process is not involved. Many of us had anticipated that a fractured, displaced odontoid process would represent the prototype lesion which so precariously endangers the patient with cervical cord compromise and death, similar to the hangman's fracture. More recent

assessments of odontoid fracture mortality, however, suggest an incidence of less than ten percent.<sup>2</sup>

One interesting and compelling aircraft accident investigated by the Naval Safety Center, Norfolk, Va., served to emphasize the practical application of this theoretical exercise. A Navy A-4 jet aircraft experienced difficulties in flight which caused the pilot to eject at an altitude, attitude, and air speed that were within the operating envelope of the ejection seat. Supported by a fully blossomed functioning parachute, however, the pilot reached the ground severely injured and died shortly after the accident, as a result of a transverse laceration of the cervical spinal cord.

The details of the investigation (omitted here for the sake of brevity) established that the energy responsible for the fatal lesion was transmitted through the helmet and its inferior edge, into the posterolateral neck. A vertebral dislocation of C-2 on C-3 resulted, which in turn severed the spinal cord. The essential mechanism of injury involved the application of blunt force to one side of the helmet, causing it to rotate about the pilot's head in such a way that the opposite side of the helmet was forced inferiorly and medially, into the adjacent neck region. Similar observations had prompted an earlier modification of the helmet, to incorporate a thicker protective edge roll. The actual helmet involved in this case is pictured in Figure 1. Note that the damage to the helmet is slight, and hardly commensurate with the significance or severity of the associated injury. It is often tacitly

assumed, when a helmet which has been subjected to large impact forces exhibits only slight damage, that the head which it is designed to protect should remain proportionally secure. This unfortunate case illustrates that nothing could be further from the truth.

The pathology itself was distinctive in that a dislocation without fracture occurred at the C-2/C-3 level of the cervical vertebrae. A roentgenographic study of the specimen is reproduced in Figure 2. A laminectomy was performed post mortem to expose the spinal cord. Histologic sections made through the C-2/C-3 vertebrae confirmed that no fracture was present despite common observations in the literature that fracture is the usual, if not invariable accompaniment of such severe dislocations.<sup>3</sup>

#### Discussion

It is especially interesting that "hangman's fracture" has been fairly recently defined as a bilateral avulsion fracture through the neutral arch of the axis, with or without fracture dislocation of the second cervical vertebral body upon the third.<sup>4</sup> The concept of the "cervicocranium" as an entity constituted by the cranium, the atlas, and the axis suggests that this functional segment above C-3 tends to move as a single unit, in dislocation as well as in flexion, extension, and rotation. The implied mechanical weakness at C-3, or the junction of the cervicocranium with the lower cervical spine makes it a likely site for dislocations in injuries sustained by mechanisms resembling that presented in this particular accident. The "hangman's fracture" is probably most frequently encountered in automobile-accident victims. What is its frequency in aviation accidents?

Unfortunately, the review of cases at the Naval Safety Center is impeded by the limited medical observations reported in cases

of this sort. It is distinctly rare to receive an autopsy protocol describing the dissection of the cervical spine, with full documentation of the nature and extent of such lesions. Yet that information is greatly needed, to develop an accurate understanding of the pathogenesis of this lesion, as well as a sound basis for recommendations on the design of protective headgear.

#### Conclusion

When you study and interpret your next aircraft accident, why not consider whether any of the linear abrasions and contusions about the victim's neck exactly correspond to part of the helmet and, if so, determine whether there is an associated lesion involving the cervicocranium. The simple procedure of fitting the helmet to the head, at autopsy, can define interesting relationships in reconstructing the mechanism of injury.

The Safety Center is most anxious to relate such findings to accumulated information stored in the existing data bank, in an attempt to better define the role of this lesion in aviation safety. Telephone us at the Naval Safety Center for any help we can offer in this, or any other related problems. (Autovon: 690-7926. Commercial: [804] 444-7926.)

#### References

1. Wood-Jones F: The ideal lesion produced by judicial hanging. *Lancet* 1:53, 1913.
2. Schatzker J, Rorabeck CH and Waddell JP: Fractures of the dens (odontoid process). *J. Bone Joint Surg* 53B(3) Aug 1971.
3. American Academy of Orthopaedic Surgeons Symposium on the Spine, Cleveland, Nov 1967. St. Louis, CV Mosby Co, 1969, p 29.
4. Schneider RC, Livingston KE, Cave AJE and Hamilton G: "Hangman's Fracture" of the cervical spine. *J. Neurosurg* 22(2), Feb 1965.

# ABATE OF WASHINGTON

## MOTORCYCLE SWAP-MEET

Time for Washington's first ABATE Motorcycle Swap-Meet - you won't want to miss the biggest m/c swap-meet in the Northwest. You're sure to find the custom, dirt, antique bike parts and related motorcycle items you've been looking for.

SEATTLE CENTER DISPLAY HALL, SEATTLE WASH. FEBRUARY 13, 1977

Open to the public from 12 noon 'til 8 p.m. Gen. Admission: \$1.00

FOR MORE INFORMATION WRITE OR CALL: ABATE of Washington 833-4427

ABATE MOTORCYCLE SWAP-MEET: DISPLAY HALL

P.O. Box 85, Auburn, Wash. 98002

### SPACE CONTRACT APPLICATION

We, the undersigned, do hereby submit our application for the reservation of a space or spaces in the ABATE motorcycle swap-meet to be held at the Seattle Center Display Hall on February 13, 1977. Enclosed is a certified check or money order made payable to ABATE Motorcycle Swap-Meet in the amount designated below as payment for the reservation of space or spaces in our name. We agree to abide by the rules set forth by the show management, and will not hold either the ABATE Motorcycle Swap-Meet nor the individuals, partnership, corporation, or the Seattle Center Display Hall responsible for any damage to persons or theft from our exhibit.

NAME \_\_\_\_\_ AGE \_\_\_\_\_ PHONE \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

Rental rate for a 5 x 10 ft. space is \$10.00 and a 10 x 10 ft. space is \$20.00. More space is available, just fill out how many.

5' x 10' \_\_\_\_\_ 10' x 10' \_\_\_\_\_

\*\*IMPORTANT-----All entries must be signed.

If under 18 years of age - have your legal guardian sign

Exhibitor's signature \_\_\_\_\_

ACCEPTANCE

Upon acceptance of this application by the show management, you will receive a confirmation letter along with any additional instructions that might be necessary.

Fill out and mail this application along with a certified check or money order to:

ABATE Motorcycle SWAP-MEET  
P.O. Box 85, Auburn, Wash 98002

Here it is! This is the biggie-it's time to go to work for real now. The 1977 Legislature convenes January 10th. We must all be there in one form or another - we're going to provide you with everything you need to be there and be felt by mail. All you need to do is come up with the small amount of energy needed to follow through.

FIRST..... study the information that arrives in your newsletter, become familiar with the issues and the answers so that the letters you write will be meaningful...

WRITE to your local and state elected officials. Included in this letter is an up to date list of Legislators and Senators.....

HOW to approach these folks can be very important also... we have included a few suggestions to help you with your letters.....

THEN..... encourage others to join you...class shows in the long run but numbers are also important to a winning cause.

RESPONSE is very important - it's really the only way we have of knowing where we stand. Always request an answer, the positive ones we can thank, the others, well, we'll know where to concentrate our efforts. (We would appreciate a copy of each and every letter received - this can help inform others, individuals and groups, of the lawmakers position).

There are the basics.....let us hear from you. We will have bills introduced in the up-coming legislative session to repeal or ammend the helmet law, the turn signal law, the day-time headlight law, and the 55MPH speed limit regulation. As soon as these bills are given titles and numbers you'll be informed of same and provided with a copy of each. Be sure to refer to these when writing.

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LET'S GET THE JOB DONE !!!!!

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Y.W.C.A. ABATE CHRISTMAS TREE RUN

This went off real nice December 4th. In all, sixteen ABATE members showed up this cloudy saturday, three - Curt Elliott, John Burbank and Joe Melero from The Dalles Chapter. Vi Martin, Camp Westwind Administrator, was there to greet us, also to give us the necessary instructions, maps and credit card so we could fill up and be on our way. One of our rigs went to Stayton while another caravan made up of one panel and three pick-ups headed a couple of miles north of Sandy and some how managed to wrestle, toss and tie about 365 christmas type trees more or less on top and into our 16 wheels. We made our way slowly and surely back into town to 10th Ave. and unloaded - I'm sure we brightened up the area with our festivities. One truck had to go back after another load so we retired to a friendly corner tavern to await their return. It seemed as though they may take a while so part of the crew came up on Jeff Rd. where we proceded to put the news letter together for a monday a.m. mailing. The rest of this motely outfit consisted of the following:

- |                 |                |                   |
|-----------------|----------------|-------------------|
| Ray Payton      | Trapper Watson | Denise Forsman    |
| Vic Wright      | Becky Manwell  | Sandra Strassburg |
| Stone Blue      | Dave Thierolf  | Paul Watson       |
| Karen Snodgrass | Lance Packer   | Sugar Kane Barton |

A good time was had by all. Thanks gang.



MID VALLEY CHAPTER NEWS

(We owe you people an apology - we misplaced your letter and failed to include this information in the last newsletter)

"Our second meeting was 11-24-'76 - we had 53 people attend with 11 new members. We had film of the last two helmet runs. These films will be shown again Dec. 15 - 7:30 at Freedom Cycle Works. (We'll do our best to get these films shown here in Portland as soon as possible)

We voted to set up a blood bank for ABATE members and would like to talk to other Chapters on this item. Note - Portland will put a member on this right away).

We have a Toys for Tots and Food for the Needy program going. We are placing boxes in stores all over Salem, Albany, and surrounding areas. All donations will be given to the Salvation Army on Dec. 20th at Freedom Cycle Works. People can bring toys or canned foods to Freedom Cycle Works, Linn Benton College, Chemeketa College and many other local businesses and shops.

I talked to some people in Eugene and they are almost ready to start a chapter down there.

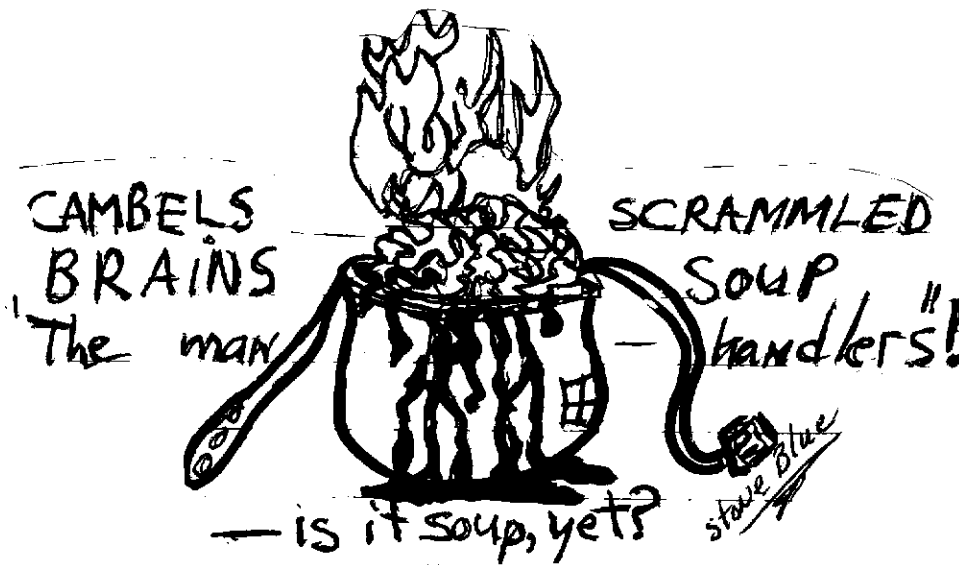
We also talked about having two ABATE runs this summer - one in northern Oregon and one in southern Oregon - to get all our ABATE Chapters together to exchange ideas etc. If nothing else, meet some of your Brothers and Sisters from other parts of the state."

Meetings are the second and fourth Wednesdays of the month - 7:30 p.m. - held at Freedom Cycle Works 1190 12th Street S.E. Salem

CHAIRMAN: Doug Monson  
SEC.: Martin Altizer  
TREAS.: Doc Laffoon  
S/A: Big Rick  
Susan Skinner

We're trying, Doug

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CHANGE OF ADDRESS DEPT.

Reminding you again to be sure to inform us if you move. We operate at considerable savings under a bulk-rate mailing permit. If your newsletter cannot be delivered, it dead-ends - they do not return it to us, therefore, we're not aware of the situation. It's your responsibility to keep us up to date.

## RIVERCITY ABATE NEWS

The 6th meeting of Rivercity ABATE was held December 21st at a pizza parlor in The Dalles. We signed up nine new members, giving us a total of thirty-five and a record attendance. At one of our previous meetings we formed three committees to take care of chapter business. A Public Relations Committee, dealing with advertisement and general P.R. work. A Beneficial Committee taking care of public service projects and money making projects. An Inspiration and Participation Committee - this committee takes care of visiting existing members who don't show at the meetings to help create enthusiasm. Also, at our last meeting, we wrote letters to Tom Snyder of the Tomorrow Show as suggested in the last newsletter. We do the letter writing at the meetings because most of us would just let it slide if we didn't. Our meetings are held the 1st Tuesday and the 3rd Sunday of each month at Spooky's Pizza Parlor - 8pm.

For more information call co-chairman Terry Humphreys at -  
1-503-296-4852

## ABATE OF LA GRANDE

This fast growing chapter holds it's meetings the second Friday of each month. At the last meeting December 3rd the following were elected officers:

Chairman.....Ron Caswell  
Co-Chairman....Jesse Lene  
Sec./Treas.....John Milbert

The next meeting will be held at the Summerville City Hall. Big John Milbert will be sending us newsletters with more details later. For more info write or call Ron - P.O. Box 74, Summerville, 534-5463. (OUR CONGRATS TO BOTH THESE UNITS - WELL DONE!)

## TOYS FOR TOTS

Some of us had the pleasure of working with the Portland Fire Dept. this year on their toy program. Many children would not have had much of a Christmas if it were not for this volunteer program - our thanks to the Fire Dept. for allowing us to participate. It gives one a good feeling to help those in need - besides the lunch was free. It is this writers understanding that a record number of packages went out this year. Those putting their efforts into this project were; Bill Montgomery, Jim Bailey, Jon Carney, Bill Montgomery, Dick Carrier, Patti Graham, Jerry Graham, Bill Montgomery, Nancy Christopher, Ken Hammon, Bill Foster, myself, of course, Jack, Scotty and Bill Montgomery,

## MISC. DEPT.

If anyone has a good picture or two from our last swap-meet, we would really appreciate a copy. We were much too busy with business to take any.

Elections for estate offices to be held 1st meeting in January.  
Can we have our copy of Kicking The Helmet Habit back please?  
OK - WE'VE DONE WHAT WE CAN - THE REST IS UP TO YOU

