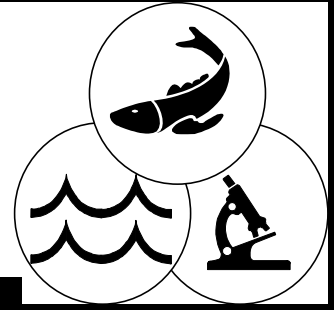


# Fish Health Newsletter

Fish Health Section/American Fisheries Society



July 2000

Volume 28, Issue 3

## PRESIDENT'S REPORT

I am pleased to report the results of the Fish Health Section election:

- **Vice President:** Paul Bowser, Ph.D. Cornell University, Ithaca, NY
- **Professional Standards Committee** (3 year term): Pete Taylor, Ph.D. Abernathy Fish Culture Technology Center USFWS, Longview, WA
- **Technical Standards Committee** (3 year term): Deborah Bouchard, MicroTechnologies Inc., Richmond, ME
- **Nominating and Balloting Committee** (3 year term): Margaret Ewing, Ph.D. Oklahoma State University, Stillwater, OK

On behalf of the members of the Executive Committee I would like to welcome you, Thank you for your commitment and service to the section, and we look forward to working with you in the future!

I would also like to thank the organizers and sponsors of the 41st Western Fish Disease Workshop, recently held in Gig Harbor, WA. All of us in attendance would agree that the Immunology Workshop was extremely informative, and followed by several sessions of excellent research presentations. Congratulations to everyone involved! If you missed the Continuing Education Workshop, you can still acquire your Continuing Education units at the Oyster Disease Workshop which will be held on Saturday September 9, immediately following the AFS/FHS Annual Meeting in Pensacola, Florida. The fee for the course is \$70, sign-up with your meeting registration. Check for more information on our website. Just a reminder that the annual business meeting will be held during the annual meeting in Pensacola. I would encourage you to make every effort to attend and participate in the business meeting. This is the only opportunity during the year that you the members can voice your opinions, concerns, and questions in person to the Executive Committee. The Executive Committee welcomes your comments and suggestions regarding the Fish Health Section, and we appreciate your continued participation in planning the future direction of our section. Hope to see you all in September on the beach.

Bev Dixon

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## FHS PARTICIPATION IN THE AAVLD / USAHA ANNUAL MEETINGS

Scott LaPatra, FHS Immediate Past-President, E-mail: [scottl@clearsprings.com](mailto:scottl@clearsprings.com)

As you know, the Fish Health Section (FHS) has committed to becoming more involved on issues of importance to the membership. For the last four years I attended and participated in the United States Animal Health Association (USAHA) and the American Association of Veterinary Laboratory Diagnosticians (AAVLD) annual meeting. Last year the meeting was held in San Diego, California and this year it will be held in Birmingham, Alabama. For background information, the USAHA is the most well established animal health organization that has approximately 1,400 members and works with a variety animal health entities both nationally, including the United States Department of Agriculture Animal Plant Health Inspection Service (USDA APHIS), and internationally. The purpose of the AAVLD, which works closely with the USAHA, is the dissemination of information relating to the diagnosis of animal disease, the coordination of the diagnostic activities of regulatory, research and service laboratories, the establishment of accepted guides for the improvement of diagnostic laboratory organizations relative to facilities, equipment and personal qualifications.

The FHS's objectives, interests and goals regarding animal health are very similar to the USAHA. One of the reasons we were in attendance was to offer our expertise and established programs in aquatic animal health and maintain visibility with other groups also concerned with animal health. Last year the AAVLD and the USAHA Aquaculture Committees met jointly and were chaired by Skip Jack and Eric Park, respectively. With the help of the committee chairs I was again able to get on the agenda and speak about the AFS and the Sections activities.

In the past we have also been very successful at passing resolutions in the USAHA Aquaculture Committee which then go before the Executive Committee of the USAHA. Four past resolutions were supported by the Committee and forwarded to USDA APHIS for comment and included:

**1996 Resolution 27:** Health Inspections for Interstate Movement of Aquatic Animals

**1997 Resolution 28:** National Survey of Free-Ranging Aquatic Animals for Free-Ranging Pathogens

**1998 Resolution 19:** The Use of Advanced Technologies for the Inspection, Diagnosis, and Certification of Aquatic Animals

For the 1999 meeting a group of FHS members drafted a Resolution entitled *Prevention of the Introduction of Foreign Aquatic Animal Diseases*. Unfortunately we were late in circulating it to the FHS Executive Committee and did not obtain approval to present it as an FHS sponsored resolution. However, I did bring the resolution before the USAHA /AAVLD Aquaculture Committee as an individual member of the committee. The committee amended the resolution into two separate resolutions, forwarded it to the USAHA Executive Committee who approved it and sent it to USDA APHIS for comment. The resolutions and AHPIS comments included:

### **BACKGROUND INFORMATION:**

There is a need to develop a national aquatic animal health management strategy and program that encompasses the interests of both the commercial aquaculture industries

and the natural resource agencies. There are three major reasons to develop a national program prioritized as follows: to prevent and control introduction of economically or ecologically damaging foreign animal diseases and significant emerging infectious diseases, to facilitate export of US aquatic animals and products, and to facilitate interstate movement of aquatic animals and products.

Prevention of exotic economically and ecologically damaging diseases is the most significant need. Changes in the international movement of aquatic animals raised for commercial purposes and greater intensification of global aquaculture have seemingly increased the possibility that exotic pathogens (either foreign animal disease or those arising for the first time from U.S. animals raised in aquaculture or wild animals) could significantly impact the aquaculture industry sector(s) and the natural resource.

**RESOLUTION 12:**

*USAHA encourages USDA-APHIS to seek authority and funding to prevent the introduction of foreign aquatic animal pathogens and develop programs to control or eradicate any so introduced agents, similar to established control programs for terrestrial species.*

**RESPONSE:**

APHIS agrees that prevention of exotic economically and ecologically damaging diseases is the most significant need facing the aquaculture industries and natural resources. APHIS further agrees that a national aquatic animal health program should address: the prevention and control of the introduction of economically and ecologically damaging foreign animal diseases and significant emerging infectious diseases, the facilitation of exportation of U.S. aquatic animals and animal products, and the facilitation of interstate movement of aquatic animals and animal products. APHIS published an advanced notice of proposed rulemaking in the Federal Register on May 4, 1999, with regard to considering farm-raised finfish as livestock under the animal quarantine law. APHIS is currently reviewing the comments received and considering the best course of action to take based on those comments.

**RESOLUTION 13:**

*USAHA encourages USDA-APHIS to seek authority and funding to work with federal natural resource agencies to define risk-assessment procedures for aquatic animal diseases of regulatory significance.*

**RESPONSE:**

APHIS is currently reviewing the responses to the Advance Notice of Proposed Rulemaking published in the Federal Register May 4, 1999, to evaluate its ability to comply with the resolution without additional authority. APHIS also continues to seek additional authority to meet the needs of the aquaculture industry and funds for working with natural resource agencies on aquatic diseases of regulatory significance.

The intent of these resolutions was to facilitate protection of natural resources and aquacultured plants and animals by utilizing agency expertise and an integrated agency approach. I will be attending the next AAVLD/USAHA Aquaculture Committee meeting in Birmingham, Alabama in October as an FHS representative. The FHS Executive Committee is soliciting ideas for a resolution that could be presented to the committee at the upcoming meeting. If you have any ideas, questions or need for additional information please don't hesitate to contact myself or any of the other members of the FHS Executive Committee.

## WHAT'S A NOVIRHABDOVIRUS?

Submitted by Gael Kurath, U.S.G.S. Western Fisheries Research Center, 6505 NE 65th St., Seattle, WA 98115.  
E-mail: [gael\\_kurath@usgs.gov](mailto:gael_kurath@usgs.gov)

Some of our most well known fish viruses are now members of a newly recognized genus within the virus family Rhabdoviridae. As a member of the rhabdovirus study group of the International Committee for Virus Taxonomy (ICTV), I have been involved for the last five years in working towards updated and improved taxonomic classification of fish rhabdoviruses. The major fruit of this effort has been the establishment of a new genus that includes many, but not all, rhabdoviruses of fish hosts. Although this new genus was officially accepted by the ICTV in July of 1998, the continuing delay in publication of the seventh report of the ICTV has meant that there is still no official notification of this change. This article is meant to explain the new genus to all interested fish health professionals.

The new genus, named "Novirhabdovirus", has infectious hematopoietic necrosis virus (IHNV) as its type strain, and includes viral hemorrhagic septicemia virus (VHSV) and hirame rhabdovirus (HIRRV) as members. Tentative members include snakehead rhabdovirus (SHRV) and eel viruses B12 and C26. Many readers will recognize that these are the viruses previously described as lyssaviruses, or "lyssa-like" fish rhabdoviruses. Historically, as fish rhabdoviruses were discovered and characterized they were placed into either the genus Vesiculovirus or the genus Lyssavirus, based on their protein profiles and dissociation characteristics. These genera contained many significant mammalian rhabdoviruses such as vesicular stomatitis virus and rabies virus. Up until the late 1980's these were the only two genera in the rhabdovirus family, and it was thought that all rhabdoviruses would belong to one or the other. It was also widely accepted in those days that all rhabdovirus RNA genomes had five genes in the order 3'-N-P-M-G-L-5'.

As molecular characterization of virus genomes became more possible, the first exception to this simple genetic pattern was the discovery that IHNV had a small sixth gene between the G and L genes (Kurath et al., 1985). This gene encodes a non-virion protein, designated NV, that is expressed at variable levels in infected cells but is not found in purified virions. As other rhabdovirus genomes were investigated it was found that Australian rhabdoviruses of mammalian hosts had duplicated G genes and 3-4 small genes in addition to the five known rhabdovirus structural protein genes. Rhabdoviruses of plant hosts were found to have a sixth gene between the P and M genes, and they were further differentiated into two groups by whether the virions matured in the cytoplasm or the nucleus of the host cells. With this evidence of diversity within the rhabdovirus family it became clear that the simple taxonomy of two genera was not accurate, and by the sixth report of the ICTV three additional genera were established to include the Australian rhabdoviruses (genus Ephemerovirus) and plant rhabdoviruses (genera Cytorhabdovirus and Nucleorhabdovirus).

By mid-1995 published reports from many fish virus researchers provided convincing data that the fish rhabdoviruses previously classified as lyssaviruses were genetically and phylogenetically distinct from this genus, and constituted a separate genus of their own. An e-mail working group was assembled in August 1995 to prepare proposals to be jointly submitted to the ICTV toward establishing this new genus. The group consisted of Gael Kurath and Jim Winton (USGS Western Fisheries Research Center, Seattle, WA.), Abdenour Benmansour and Pierre De Kinkelin (INRA, Jouy-en-Josas, France), Jo-Ann Leong (Oregon State University), Harry Bjorklund (Abo Akademi University, Finland), Sergey Morzunov (University of Nevada, Reno), and Stuart Nichol (Centers for Disease Control, Atlanta, GA.). Together we prepared and sent two proposals to the ICTV, one for the establishment of a new genus, and the other for designation of IHNV as the type

species. These proposals were originally submitted in June 1996, and due to changes in the study group leadership they were re-submitted in April 1997 and again in February 1998. Such is the evolutionary pace of taxonomy. Both proposals were officially accepted by the ICTV in July 1998.

The new genus name, Novirhabdovirus, follows current ICTV rules in reflecting the hallmark feature of the genus, which is the presence of the non-virion (NV) gene. "Novi-" is comprised of no- and vi-, which are sigla for non-virion, indicating the non-virion gene. Thus, rhabdovirus species that belong to this genus must all have an NV gene between the G and L genes on the RNA genome. In addition, species within this genus have nucleotide sequences of the other structural genes (notably the G and N genes) that cluster phylogenetically with the known members of the genus, and are separate from rhabdoviruses of other genera. To date all members of the novirhabdovirus genus are viruses of fish hosts, but that is not an essential requirement for membership in the genus.

It is important to note that all fish rhabdoviruses are not members of this new genus. Molecular characterization has thus far upheld the historical differentiation of fish rhabdoviruses into two distinct groups. The group described above comprises the new genus. The second group, including spring viremia of carp virus (SVCV), pike fry rhabdovirus (PFR), eel virus American (EVA), eel virus European (EVEX), and ulcerative disease rhabdovirus (UDRV), are not novirhabdoviruses. Among the viruses in this group SVCV has been characterized at the molecular level and shown to have no NV gene (Bjorklund et al., 1996). In addition, the G and N gene sequences of SVCV cluster phylogenetically with the mammalian vesiculoviruses, indicating that this group of fish rhabdoviruses most likely belongs in the vesiculovirus genus.

Now that the taxonomy of these important viruses has been clarified we should all begin using the new genus name, Novirhabdovirus, when we refer to IHNV, VHSV, or other viruses in with this group. Until the publication of the seventh report of the ICTV, the citation to use for this genus should be as shown in the reference list.

**Table 1. Taxonomic Structure of the Family Rhabdoviridae as of 1998**

Genus name (host taxa)	Type Species	Fish virus members	Fish virus tentative members
Lyssavirus (mammals)	rabies virus		
Vesiculovirus (mammals, fish)	vesicular stomatitis virus		SVCV, PFR, EVA, EVEX, UDRV
Ephemerovirus (mammals)	bovine ephemeral fever virus		
Cytorhabdovirus (plants)	lettuce necrotic yellows virus		
Nucleorhabdovirus (plants)	potato yellow dwarf virus		
Novirhabdovirus (fish)	IHNV	IHNV, VHSV, HIRRV	SHRV, eel virus B12, eel virus C26

\*The designation of members and tentative members is as in the ICTV seventh report.

Fish virus abbreviations are as defined in the text.

#### References:

Bjorklund, H. V., Higman, K. H., & Kurath, G. (1996). The glycoprotein genes and gene junctions of the fish rhabdoviruses spring viremia of carp and hiram rhabdovirus; analysis of their relationships with other rhabdoviruses. *Virus Res.*, 42, 65-80.

Kurath, G., & Leong, J. C. (1985). Characterization of infectious hematopoietic necrosis virus mRNA species reveals a nonvirion rhabdovirus protein. *J. Virol.*, 53, 462-468.

Walker, P. J., A. Benmansour, C. H. Calisher, R. Dietzgen, R. X. Fang, A. O. Jackson, G. Kurath, J. C. Leong, S. Nadin-Davies, R. B. Tesh, and N. Tordo. Family Rhabdoviridae, In "The seventh report of the international committee for taxonomy of viruses". Springer Verlag, In Press.

## UPCOMING MEETINGS

**The AFS/Fish Health Section 2000 Annual Meeting** will be hosted by Jack Fournie (U.S. EPA) and Vicki Blazer (USGS). The meeting will be held at the Hampton Inn, Pensacola Beach Florida on **September 6-8, 2000**

**Hosted By:** U.S. Environmental Protection Agency, Gulf Ecology Division  
Leetown Fish Health Research Laboratory, U.S. Geological Survey

**Place:** Hampton Inn, Pensacola Beach, Florida

**Schedule:** Registration: Tuesday, September 5, 5 – 6:00 pm and Wednesday morning (depends on start time), Hampton Inn

**Technical Sessions:** September 6-8 (will start either morning or noon of Sept. 6, depending on number of abstracts submitted), Hampton Inn.

**AFS/FHS business meeting:** Wednesday, Sept. 6, 3:30-5:00

**Hosted Social:** Wednesday, September 6, 5:30-7:00

**Banquet:** Thursday evening, September 7, AWESOME buffet including seafood, chicken and beef entrees, on the beach

AFS/FHS Continuing Education course, Hampton Inn, Saturday, September 9

**Hotel Accommodations:** Rooms have been blocked (held until July 31) at:  
Hampton Inn Inland View Room \$ 79.00 (complimentary breakfast)  
(850) 932-6800 Gulf View Room \$109.00

## OYSTER DISEASE WORKSHOP – PENSACOLA, FL. 9 SEPT. 2000

A one-day oyster disease workshop will be held at the Hampton Inn, Pensacola, Florida on 9 Sept 2000, following the AFS Fish Health Section Annual Meeting. This workshop is sponsored in by Continuing Education program, AFS Fish Health Section. The workshop will be an introduction to oyster diseases, geared towards researchers and diagnosticians with a background in finfish health. Diagnostic methods, both traditional and molecular based, will be emphasized.

2 international experts in shellfish diseases will teach the course:

Dr. Ralph Elston  
AquaTechnics/Pacific Shellfish Institute  
Carlsborg, WA USA

Dr. Rob Adlard, Curator of Protozoa  
Queensland Museum  
Brisbane, Qld, Australia

**Cost - \$ 70**

For further information contact:

Dr. Michael L. Kent  
Director, Center for Salmon Disease Research  
Department of Microbiology  
220 Nash Hall  
Oregon State University  
Corvallis, OR 97331  
kentm@bcc.orst.edu

The combined **Western Fish Disease Meeting and the AFS/Fish Health Section Meeting** will be held in **Victoria, British Columbia September 10-12, 2001** at the Laurel Point Inn. We will provide more information as the dates draw closer. Garth Traxler.

## EMPLOYMENT/EDUCATIONAL OPPORTUNITIES

### FISH AND WILDLIFE HEALTH SPECIALIST - FISH HEALTH RESEARCH

\$3422-4378 per month (range 56) *Salary effective 7/1/2000*

**Opens:** June 28, 2000

**Applications are due by 5:00 p.m. on:** August 30, 2000

**DUTIES:** Designs, implements and manages fish health research and associated activities affecting hatchery-reared and wild fish.

**HOW TO APPLY:** Send a completed Washington State job application and exam responses to:

Department of Personnel  
Applications Unit  
600 S. Franklin St.  
PO Box 47561  
Olympia, WA 98504-7561

#### REQUIREMENTS

A graduate degree from an accredited college in fish health/pathology or Doctor of Veterinary Medicine from an accredited veterinary school, **AND** three years of professional experience in fish health/pathology.

#### EXAMINATION

The examination is an evaluation of your education, experience and training. Your score will be based solely on the information that you provide in your application and to your response to the following.

**On an additional sheet of paper, describe how you meet the requirements for this position. Please provide clear, detailed information about your job-related education and experience. Attach the sheet to your application.**

We will mail your score to you, but we cannot tell you your ranking on the list of job applicants. Additional information will not be accepted after the closing date of this announcement. *Visit our website at: <http://www.wa.gov/dop>. Email any questions on this bulletin to: [PSDTeam@dop.wa.gov](mailto:PSDTeam@dop.wa.gov) or call (360) 664-6250.*

## LOUISIANA STATE UNIVERSITY

### GRADUATE RESEARCH ASSISTANTSHIPS

Positions are available to support graduate studies (MS or PhD) concerning important bacterial and viral pathogens of fish. Students will incorporate modern molecular and cell biology methods in the evaluation of virulence factors, in the comparison of immune responses of fish to killed and/or live attenuated bacterial vaccines, or to the development of DNA vaccines. If interested contact Dr. Ronald Thune at phone: 504-346-3308; FAX: 504-346-5715; e-mail [thune@mail.vetmed.lsu.edu](mailto:thune@mail.vetmed.lsu.edu). Or submit a resume,

*(Continued on page 8)*

*(Continued from page 7)*

statement of research interests, and transcripts to: Dr. Ronald Thune, Department of Veterinary Microbiology and Parasitology, Louisiana State University, Baton Rouge, LA 70803.

### **Research Associate**

A research associate position is available immediately to conduct studies on vaccine development and pathogenesis associated with bacterial and viral pathogens of fish. We are looking for an energetic, self starter that wants to learn and apply techniques in molecular biology. Duties will involve conducting a variety of molecular techniques, including cloning and DNA sequencing, record keeping, data analysis, and assisting in laboratory management. The successful candidate will interact with an active research team involved in the use of molecular approaches to study bacterial pathogenesis and immunity in fish. Position will be filled by a B. S. degree research associate (with an option to pursue further graduate training). Preferred candidates will have a B. S. degree in Microbiology or a closely associated life science. Applications will be accepted until a suitable candidate is identified. Submit curriculum vitae with the names of 3 references to: Ronald Thune, Department of Veterinary Science, Louisiana State University Agricultural Center, Baton Rouge, LA 70803. Phone: 225-346-3308; FAX 225-346-5715; email [thune@mail.vetmed.lsu.edu](mailto:thune@mail.vetmed.lsu.edu).

### **Post-Doctoral Research Associate**

A post-doctoral position is available immediately to conduct studies on vaccine development and pathogenesis associated with bacterial and viral pathogens of fish. Duties will involve conducting a variety of molecular techniques, including cloning and DNA sequencing, DNA vaccine development and assesment, record keeping, data analysis, and assisting in laboratory management. The successful candidate will interact with an active research team involved in the use of molecular approaches to study bacterial pathogenesis and immunity in fish. Candidates will have a Ph. D. degree in microbiology, immunology, aquatic animal health, or a closely associated life science. Applications will be accepted until a suitable candidate is identified. Submit curriculum vitae with the names of 3 references to: Ronald Thune, Department of Veterinary Science, Louisiana State University Agricultural Center, Baton Rouge, LA 70803. Phone: 225-346-3308; FAX 225-346-5715; email [thune@mail.vetmed.lsu.edu](mailto:thune@mail.vetmed.lsu.edu).

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**CALL FOR PAPERS**  
**The 7th Annual Whirling Disease Symposium**  
**"A DECADE OF DISCOVERY"**  
**February 8 and 9, 2001**  
Cavannaughs Olympus Hotel  
Salt Lake City, Utah

Please share your expertise and latest findings at the annual symposium on whirling disease. The symposium will include seven sessions:

- Session I: **Distribution and Dissemination**
- Session II. **Parasite Research**
- Session III: **Oligochaete Research**
- Session IV: **Salmonid Research**
- Session V. **Ecology**
- Session VI. **Diagnostic Methods**
- Session VII. **Management and Control**

Most researchers will present papers during the oral presentation sessions. Those wishing to present their work as a poster may do so at the Thursday evening poster session.

**YOUR OPTIONS**

This year, in addition to the requirement to prepare a short abstract for the meeting proceedings, the American Fisheries Society and the Whirling Disease Foundation offer an opportunity to have your work peer-reviewed and published in a post-symposium book, all at no cost to you (except for the option of purchasing a bound copy). Guidelines for submission of abstracts for the proceedings, and for preparing manuscripts and abstracts for the book, will be mailed to you in October, 2000. Please fill in, as appropriate, the following:

- 1) I wish to make a \_\_\_ poster \_\_\_ paper presentation of my work at the symposium, and will submit an **Abstract** for inclusion in the proceedings that will be handed out at the meeting. I understand that my abstract is due at the Whirling Disease Foundation by January 12, 2001.
- 2) I also wish to have my \_\_\_ full manuscript \_\_\_ short manuscript \_\_\_ extended abstract **Peer-Reviewed and Published** for publication in the post-symposium book. By January 12, 2001, I will also submit an Abstract for inclusion in the proceedings to be handed out at the meeting. I understand that my manuscript for publishing is due AT THE MEETING.
- 3) \_\_\_ YES \_\_\_ NO The topic for my presentation has already been submitted and/or published, but I would like you to consider reprinting my paper in the post-symposium book. \_\_\_ YES \_\_\_ NO Additionally, I will present an update of this previously-published work at the symposium.

Title of my presentation (Please list additional papers on copies of this form):

\_\_\_\_\_  
\_\_\_\_\_

My name:

Title/

Affiliation \_\_\_\_\_

Address \_\_\_\_\_

Phone/Fax: \_\_\_\_\_

E-Mail: \_\_\_\_\_

**Please submit your paper or poster TITLE by October 16, 2000 to:**

The Whirling Disease Foundation

P.O. Box 327

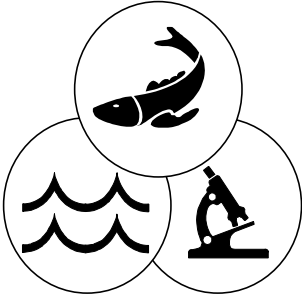
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Deadline for next issue:  
September 30, 2000

Fish Health Newsletter

## Fish Health Newsletter - Editorial Policy

The *Fish Health Newsletter* is a quarterly publication of the Fish Health Section of the American Fisheries Society. Submissions on any topic of interest to fish health specialists and preliminary case reports are encouraged with the understanding that material is not peer reviewed. Abstracts submitted to the *Journal of Aquatic Animal Health* are also encouraged. Articles should not exceed two newsletter pages and should not have more than five references. Submissions *must* be formatted in Microsoft Word, WordPerfect 6.x or other major Windows word processors, and can be sent by electronic mail or via 3.5" floppy disk to the editor's address below:

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