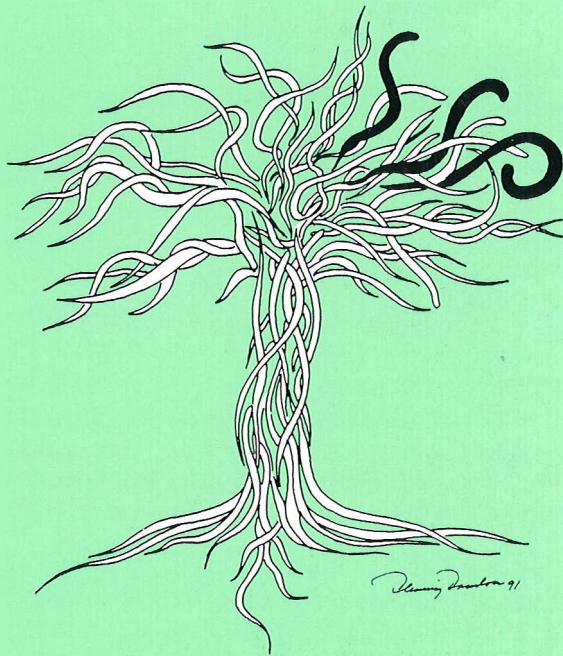


**Bulletin
of the
SCANDINAVIAN SOCIETY
FOR PARASITOLOGY**



Vol. 9 No. 2 1999

BULLETIN OF THE SCANDINAVIAN SOCIETY FOR PARASITOLGY

The Bulletin is a membership journal of the Scandinavian Society for Parasitology. Besides membership information, it also presents articles on all aspects of parasitology, with priority given to contributors from the Nordic countries and other members of the Society. It will include review articles, short articles/communications. Comments on any topic within the field of parasitology may be presented as Letters to the Editor. The Bulletin is also open for a short presentation of new projects. All contributions should be written in English. Review articles are commissioned by the editor, however, suggestions for reviews are welcomed.

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Cover: In Norse mythology, the giant ash tree - Yggdrasill - spreads its limbs over the entire mankind. The ash has three roots, each of them sucking water from its own spring.

The first spring- Hvergelmir - is found in the ice cold North; next to the spring, the serpent Niðhoggr is ceaselessly gnawing at the roots of the ash. The second spring - Mímisbrunnr - is the source of wisdom and is guarded by Mímir. The third spring - Urðarbrunnr - is guarded by three women, the Norns, which mete out man's thread of life.

Lateral transmission of toxoplasmosis in a herd of reindeer (*Rangifer tarandus*): case not proven

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Toxoplasmosis caused by the protozoan *Toxoplasma gondii* is an ubiquitous zoonosis affecting most warm-blooded animal species (Dubey & Beattie, 1988), including reindeer (*Rangifer tarandus*) (Kolychev *et al.*, 1966). Animals can be infected by ingesting meat or other tissues from persistently infected animals, or by swallowing oocysts originating from feline faeces. Foetuses can also be infected transplacentally by the mother. Transmission of infection has also been associated with consumption of fresh, unpasteurized goat milk (Riemann *et al.*, 1975; Sacks *et al.*, 1982; Skinner *et al.*, 1990), suggesting that viable tachyzoites can be present in secretions, and this has also been confirmed experimentally with milk and semen (Dubey *et al.*, 1980; Dubey & Sharma, 1980; Teale *et al.*, 1982; Pettersen, 1984). The oocyst form of the parasite was discovered in the late 1960's (Work & Hutchison, 1969; Dubey *et al.*, 1970). In spite of the aforementioned, oocysts are now considered to be the only source of postnatal infection of practical importance for herbivores,

including ruminants (Dubey & Beattie, 1988).

Before the discovery of the sexual life cycle of *T. gondii*, Russian scientists described several *Toxoplasma* infection trials in reindeer (Kolychev *et al.*, 1966). In these trials they used large numbers (60 to 180 millions) of tachyzoites of the RH strain and of another isolate (Rt 131), the latter originally isolated from a reindeer in the USSR. The authors noted that the inoculated animals showed reduced appetite, ruminal atony, weak habitus, tachypnoea, muco-purulent discharge from the eyes and the nares and fever of up to 41°C, with some animals coughing and showing inspiratory dyspnoea. They also recorded the same symptoms in sentinel reindeer corralled together with the inoculated animals. The symptoms in these sentinel animals appeared somewhat less severe than in the experimentally infected reindeer but were also associated with an antibody response, strongly suggesting lateral transmission of toxoplasmosis within the corrals. This is to some extent in conflict with current understanding of the epidemiology of toxoplasmosis.

Tachyzoites are generally considered very susceptible to environmental conditions, such as temperature and dryness, and do not survive well in gastric secretions (Dubey & Beattie, 1988). However, tachyzoites were infectious to mice when placed on the mucous membranes of the nose, conjunctiva, or mouth (Räisänen & Saari, 1978). In the aforementioned series of reindeer trials, alimentary infection could be induced using tachyzoites from peritoneal fluid exudate of *Toxoplasma*-infected mice (Kolychev *et al.*, 1966). A possible explanation might be that the tachyzoites invaded the mucosae of the mouth, oesophagus or forestomachs, rather than survived the abomasal environment. Recently, however, a kitten was infected by tachyzoites placed in stomach by a stomach tube (Dubey, 1998).

Although common source exposure to oocysts can explain the observed spatial or temporal clustering of *T. gondii* infections in ruminants (Waldeland, 1977; Dubey & Kirkbride, 1989; Lundén *et al.*, 1992; Mainar *et al.*, 1996; Oksanen *et al.*, 1997), such clustering would also be expected if lateral transmission took place. Therefore, we made an attempt to repeat the original experiment (Kolychev *et al.*, 1966), but by giving the primary inoculation in the most natural way, as a relatively small number of sporulated *T. gondii* oocysts by the gastrointestinal route.

On 17 March, 1995, three seronegative reindeer calves, and one seropositive (as a result of congenital infection), all aged about 10 months, were each intraruminally inoculated with 500 sporulated oocysts of the M3 isolate of *T. gondii*, originally derived from a case of

ovine abortion in Scotland. The dose was chosen so as to avoid inducing serious illness. In a previous trial, a reindeer inoculated with 50000 *T. gondii* oocysts of the ME-49 strain developed haemorrhagic toxoplasmic enteritis and died, while another reindeer given 5000 oocysts also became seriously ill, but recovered after treatment with sulphatrimethoprim and fluid therapy (Oksanen *et al.*, 1996).

Following dosing, the animals were kept together in isolation to reduce the risk of unexcysted oocysts passing out in the faeces and transmitting infection to sentinel animals. On day four the inoculated reindeer were moved into an enclosure together with 7 seronegative sentinel reindeer calves of the same age and they were corralled together for 14 days. The trial plan was approved by the Provincial Veterinary Officer of the Province of Oulu, Finland. During days 6 to 10 post inoculation, the inoculated animals developed temporary mild clinical symptoms including depressed appetite and indolence. No excessive nasal or eye discharge or dyspnoea was noticed. Because the animals could not be easily and stress-free captured, no body temperature measurements were made. Mild symptoms were also seen in the animal (id 93) seropositive from the beginning. None of the sentinel animals showed any symptoms of toxoplasmosis.

Serological examinations were performed using the Direct Agglutination Test as described earlier (Oksanen *et al.*, 1998) at a dilution of 1:25. In the case of a positive reaction (agglutination), a quantitative test was performed in 2-fold dilutions up to 1: 102400.

Table 1. Direct Agglutination Test antibody titres for the experimentally inoculated and sentinel reindeer calves

Animal id.	91	92	94	93 ^a	i	ii	iii	iv	v	vi	vii
	inoculated with 500 oocysts				not inoculated						
day -10	<25	<25	<25	≥102400	n.d. ^c	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
day +4 ^b	<25	<25	<25	≥102400	<25	<25	<25	<25	<25	<25	<25
day +7	<25	<25	<25	≥102400	<25	<25	<25	<25	<25	<25	<25
day + 14	25600	12800	12800	≥102400	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
day + 20	≥102400	≥102400	51200	≥102400	<25	<25	<25	<25	<25	<25	<25
day + 25	≥102400	≥102400	≥102400	≥102400	<25	<25	<25	<25	<25	<25	<25

^acongenitally infected animal

^bthe day when the inoculated and sentinel animals were put together

^cnot done

The three seronegative reindeer seroconverted between days 7 and 14 (see Table 1). None of the sentinel animals seroconverted (titre <1:25) by day 25 (11 April), which was the last sampling date. After that, the experiment was prematurely terminated as a runaway brown bear killed six of the reindeer on 13 April. As a result, the follow-up time of the sentinel animals, after removal of the inoculated animals, was only 19 days following the onset of symptoms in the inoculated reindeer, instead of 30 days as scheduled.

The failure to repeat the observation of lateral transmission (Kolychev *et al.*, 1966) might also be due to strain differences of the parasite. It is now well known that strains of *T. gondii* vary in their pathogenicity (Dubey & Beattie, 1988). The Rt 131 strain used in Russia was originally isolated from reindeer, while in the present trial the M3 isolate was used. Another likely explanation is that in the present experiment the inoculated animals only developed mild illness and so the suggested possible presence of *T. gondii* tachyzoites in the secretions of the inoculated animals remained low, at the most.

Based on the current experience, we cannot refute the statement «Although the possibility of transmission via tachyzoites is well demonstrated, nothing is shown or quoted to indicate the statistical probability of such happenings...» (Frenkel, 1979).

Acknowledgements

Financial support was given by the Norwegian National Centre for Veterinary Contract Research and Commercial

Services Ltd (VESO). Dr J Pudas, Mr J Ylönen, and the Department of Biology at the University of Oulu, Finland, gave access to the experimental animals and the experienced animal handling staff. Reindeer owners J Manninen and V-P Leskelä gave the sentinel animals. Dr JP Dubey donated the *T. gondii* antigen for the agglutination test, as well.

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Species richness patterns hidden in filing cabinets

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Dear Colleagues

Do host population density affect species richness in parasite communities? This question is important in epidemiology and indeed also for a general ecological understanding of species diversity, as most animal species are parasites (Price 1980). Working as a Research Fellow for the Norwegian Research Council, I am addressing this issue using the comparative method. I am writing to request a particular sort of raw data not normally reported in the literature.

I am interested in the densities of nematodes in mammals. Analyses of data from mammalian nematodes have shown that the comparative method is a potentially powerful approach for understanding the factors determining parasite densities. Despite substantial within-species variation in density, there are repeatable patterns across species (Arneberg *et al.* 1997). Moreover, strong positive relationships between host population density and parasite abundance are detectable using comparative methods (Arneberg *et al.* 1998). From theory, the mechanism generating this

relationship is likely to cause also parasite species richness to scale positively with host densities (May and Anderson 1979). Thus, as the effect of host population density on parasite abundance is readily detectable using a comparative approach, then using the same kind of data, the prospects look good for detecting a potential effect of the same mechanism on species richness.

However, a potential problem is that estimates of parasite species richness can be seriously biased by number of hosts examined. One way to deal with this is to look at how accumulated number of parasite species changes with increasing number of hosts examined and estimate species richness from the shape of such curves (Walther *et al.* 1995). Alternatively, species richness may be estimated using capture-recapture simulations on the data (Boulinier *et al.* 1998). However, both approaches require intensity data for each parasite species in each host individual, which, unfortunately, are rarely available from the literature. I would therefore be grateful to those colleagues who would be willing to

share this kind of data from their studies of densities of mammalian nematodes. What I need is a complete overview of the numbers of each parasite species in the first host individual, the same data for the second host and so on for all the examined host individuals.

The analyses will be based on data from a total of 30-40 mammalian species, and a contribution to the estimation of parasite species richness in one of these host species would be valuable and much appreciated. Your data will not be used for any other purposes than the one mentioned here. Contributions will be acknowledged in any papers that arise, and I would be happy to show contributors any such paper at draft stage.

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NEWS

We have received some information on current parasitological research in the Nordic countries. Our members are encouraged to follow this example and send their contribution

Survey of reported parasites of Norwegian fresh water fish

A survey of reported parasites of Norwegian freshwater fish has recently been published in the report series of the Norwegian Society for Zoology. The reference of the report is Sterud, E. 1999. Parasitter hos norske ferskvannsfisk. Norsk Zoologisk Forening. Rapport 7. 22 s.

This report aims to list all parasites (*sensu lato*) which have been recorded in Norwegian freshwater fish. Such a list has never previously been published in Norway. The list is based on a thorough literature study, personal communications to the author and observations made by the author. For some groups especially the monogeneans, a major part of the species were found in faunistic studies which have been published in recent issues of the Bulletin.

The report is organised as a 10 page table where the parasites are listed alphabetically within their phyla. For each parasite species the table gives information on host species, localisation in host, geographic distribution, and when and by whom it was discovered for the first time. The table also gives references to central works dealing with the parasite under Norwegian conditions. The report is written in Norwegian, but all abbreviations and names of fish are also given in English. There is also a short English summary, and thus it should not be any problem for international readers to use the table.

A free reprint of the report can be ordered from the author at the following address:

Erik Sterud, National Veterinary Institute, PO. Box 8156 Dep, N-0033 Oslo, Norway,
e-mail: erik.sterud@vetinst.no

Erik Sterud was educated cand. scient. at the Zoological Museum, University of Oslo in 1992. The title of his thesis was "Epidermal structure in salmon, *Salmo salar* L., brook trout, *Salvelinus fontinalis* Mitchill and arctic charr, *S. alpinus* L. infected with *Gyrodactylus salaris* Malmberg, under experimental conditions". The thesis was written in Norwegian, but has later been published in Journal of Fish Diseases 21: 257-263 (1998). In 1997, Erik ended his dr. scient. work at the National Veterinary College. The title of the thesis was "Flagellates of the genus *Spironucleus* Lavier, 1936 (Diplomonadida: Hexamitidae) parasitising farmed and feral fish in Norway". Among others, this work includes a description of *Spironucleus barkhanus*, the causative organism to systemic spironucleosis (previously called systemic hexamitosis) in sea caged Atlantic salmon in Northern Norway in the early 1990s.

When examining a large number of fish of different wild salmonid species, Erik and his co-authors frequently found *S. barkhanus* while they never found *H. salmonis* which had previously been reported several times in Norway. Species of the genera *Hexamita* and *Spironucleus* can not be separated by the use of light microscope, an electron microscope is needed. Based on lack of recent observations and inadequate identification, it is the presence of *H. salmonis* in Norway is doubted. This may apply to other countries as well.

At present, Erik Sterud is employed at two projects at the National Veterinary Institute studying *Gyrodactylus* species on fresh-water salmonids and parasites, mainly protists, in farmed marine fish.

Tor Atle Mo

Senior Researcher, National Veterinary Institute

New projects in Jyväskylä, Finland:

Local adaptation and genetic differentiation in helminth populations in aquatic systems

The aims:

1. To study whether parasites, while utilizing hosts with limited dispersal, will show local adaptation; that is, the parasites will be better adapted to their local host populations than to other populations of the same host species.
2. whether genetic differentiation of parasites will be related to the degree of geographical separation.

Local adaptation is studied by reciprocal cross infection experiments using parasites and hosts from different localities the model system being *Acanthocephalus lucii* and its intermediate host *Asellus aquaticus*. Genetic differentiation is studied using several DNA techniques: DNA sequencing, allozyme electrophoresis and possibly RAPD.

Work was started 1.4. 1999 and is financed by Finnish Academy. PhD student Tiina Hasu.

Supervisor E.T. Valtonen and Dieter Ebert.

Influence of parasites on fish survival; interactions between predation and food

The aims:

1. To study whether parasites make their hosts more susceptible to predation
2. whether parasites influence on the feeding success of fish and
3. if the resistance of fish against parasites can be improved via addition of vitamin in food.

The questions presented above are studied using experimental design; digenean (*Diplostomum spathaceum*) - salmon -model.

Work was started 1.9. 1999 and it is financed by the graduate school of Biological interactions

PhD student Anssi Karvonen

Supervisors E.T. Valtonen and Pieter Hudson

Dissertations 1999

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Subject: Transmission of *Triaenophorus crassus* from copepod first to coregonid second intermediate hosts and effects on intermediate hosts.

Original publications:

Pulkkinen, K. & Valtonen, E. T. 1998: The use of parasites as tags to elucidate differences between whitefish populations. Archiv für Hydrobiologie, Special Issues, Advances in Limnology 50: 257-71.

Pulkkinen, K., Valtonen, E. T., Niemi, A. & Poikola, K. 1999: The influence of food competition and host specificity on the transmission of *Triaenophorus crassus* (Cestoda) and *Cystidicola farionis* (Nematoda) to *Coregonus lavaretus* and *Coregonus albula* (Pisces: Coregonidae) in Finland. International Journal for Parasitology. In press. Scheduled publication 29/11 p. 1753-63

Pulkkinen, K. & Valtonen, E. T. 1999: Accumulation of plerocercoids of *Triaenophorus crassus* Forel (Cestoda) in the second intermediate host *Coregonus lavaretus* and their effect on growth of the host. Journal of Fish Biology 55: 115-26

Pulkkinen, K., Pasternak, A. F., Hasu, T. & Valtonen, E. T.: Effect of *Triaenophorus crassus* (Cestoda) infection on the behaviour and susceptibility to predation of the first intermediate host *Cyclops strenuus* (Copepoda). Manuscript (submitted).

Pasternak, A. F., Pulkkinen, K., Mikheev, V., Hasu, T. & Valtonen, E. T. 1999: Factors affecting abundance of *Triaenophorus* infection in *Cyclops strenuus*, and parasite-induced changes in host fitness. *International Journal for Parasitology*. In press. Scheduled publication 29/11 p. 1793-1801.

Date of dissertation: 24th July 1999.

Preliminary examiners: Professor Karin Anderssen, Zoological Museum, University of Oslo, Norway and Dr. Kenneth MacKenzie, Department of Zoology, University of Aberdeen, UK.

Opponent: Professor Clive Kennedy, Department of Biological Sciences, University of Exeter, UK.

Supervisors: Professor Tellervo Valtonen, Department of Biological and Environmental Science, University of Jyväskylä, Finland and Docent Ilppo Vuorinen, Archipelago Research Institute, University of Turku, Finland

ABSTRACT

Pulkkinen, Katja

Transmission of *Triaenophorus crassus* from copepod first to coregonid second intermediate hosts and effects on intermediate hosts

University of Jyväskylä, 1999, 40 p. (Biological Research Reports from the University of Jyväskylä, ISSN 0356-1062; 76) ISBN 951-39-0454-7

Factors affecting transmission of *Triaenophorus crassus* (Cestoda) from copepod first to coregonid second intermediate hosts were studied using field data from three areas at Lake Saimaa, SE Finland, as well as data from experimental infections of hosts in the laboratory. In Lake Saimaa whitefish (*Coregonus lavaretus* s.l.) were frequently infected with *T. crassus* plerocercoids, but vendace (*C. albula*) only accidentally. Stomach samples indicated that both fish species consumed copepod species that were suitable as hosts. In experimental infections whitefish became infected with *T. crassus* but vendace did not. Abundances of a benthically transmitted nematode *Cystidicola farionis* in whitefish indicated that as a superior competitor for planktonic food, vendace, when abundant, may displace whitefish from feeding on plankton and force it to rely more on benthic food. Vendace stock strength did not, however, affect the abundance of *T. crassus* in whitefish. This is possibly due to synchronization of the transmission of the parasite to the seasonal feeding behaviour of coregonids in spring in the littoral zone, when copepods are the only abundant food available for both whitefish and vendace. Vendace, however, do not become infected even though they

eat infected copepods, since *T. crassus* is less infective for vendace than whitefish. In the first intermediate host (*Cyclops strenuus*), *T. crassus* infection affected the copepod's feeding, fecundity and survival and caused changes in swimming behaviour and microhabitat selection and an increased susceptibility to predation by whitefish juveniles in the laboratory.

However, evidence that the behavioural alterations in copepods were caused by active manipulation adaptive to the parasite was not clear. In whitefish, the accumulation of the plerocercoids seemed to increase in the oldest hosts, in which also the effects of *T. crassus* infection on growth were concentrated. However, no evidence of parasite-induced mortality was found.

Key words: Behavioural changes; copepods; *Coregonus*; *Cyclops strenuus*; *Cystidicola farionis*; growth; host specificity; transmission; *Triaenophorus crassus*.

In memorian

Two of our distinguished members, both of them Honorary members of the Scandinavian Society for Parasitology, have passed away this since the previous issue of the Bulletin.

Professor emeritus Rolf Vik (1917 - 1999)



Professor Rolf Vik passed away on the 4th of May this year at the age of 81. Since 1985 he had been an honorary member of the Scandinavian Society for Parasitology and with him another of the founder members of this society has left us forever.

Rolf Vik's interests in parasites started early in life while studying biology at the University in Oslo. In 1950 he graduated as cand. real. with a thesis on cestodes within the genus *Diphyllobothrium*. He was the first to study systematic and ecological aspects of parasitology at the University of Oslo!

In 1958, while employed as lecturer in biology and gymnastics at the Teaching College of Oslo, he defended his Dr.philos thesis, again on *Diphyllobothrium*.

In 1960 he became a reader in zoology at the University of Oslo and in 1964 a docent at the same place. In 1965 he was appointed professor and head of the Zoological museum in Oslo where he stayed until he retired at the age of 70 in 1987.

Rolf Vik was active within our society from the very beginning . He was member of the Scientific board of the Society from 1967 - 1968 and he was the president of the society in 1968 and 1969. In 1969 he arranged the 4th symposium of the society at Voksenåsen in Oslo.

At the museum Vik continued his research within parasitology and contributed largely to our knowledge of helminth occurrence and distribution in Norwegian freshwater fish. He became an internationally acclaimed scientist who by his combination of experimental and field studies contributed to the understanding of host/parasite relations and parasite lifecycles.

He was an enthusiastic lecturer at the University who drew new students to the field of parasitology. The Zoological museum became a centre for parasitological research in Oslo.

Rolf Vik must be given the credit for the restoration of the Zoological Museum in Oslo which started shortly after his appointment as professor and head of the museum and culminated with the opening of our new exhibitions in 1972. Rolf Vik was vividly engaged in environmental questions and during the 1960's and 70's he was constantly involved in public debates both on local and global pollution. During 1973 and 1974 he was appointed and employed by the newly erected Ministry for Environmental Affairs as a consultant ecologist.

During his long and extensive career Rolf Vik was also Chief Editor of the journal *Holarctic Ecology* and head of World Wildlife's scientific committee. He was the editor of several books and participated in radio as well as television programs on biological and environmental topics.

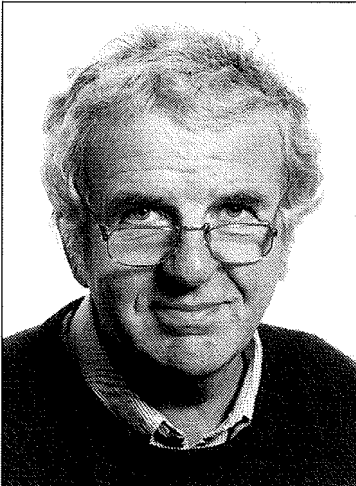
Vik was the initiator in the starting process of three laboratories for freshwater and inland -fisheries, today located at the museums in Oslo, Bergen and Trondheim.

He was an honorary member of our society and the Norwegian Society for Zoology, he was a holder of his Majesty the King of Norway's Golden Medal for great achievements and he was *Commandeur del'ordre de merit social de Belgique*.

Rolf Vik was a constant source of inspiration for all his students and co-workers. He was a great personality, very demanding but always fair and we miss him very much amongst us.

Karin Andersen
Zoological Museum, Oslo

Professor Peter Nansen † 26th October 1999



Tirsdag den 26. november 1999 blev mange ramt dybt i hjertet ved meddelelse om Peter Nansens pludselige død. Det var ufatteligt, at en så nærværende, varm og engageret person som Peter var død. Peter var en sjælden personlighed, der favnede bredt og dækkede et stort fagligt område, parasitologien, som han var dybt engageret i fra midten af 60'erne. Udover den store faglige dybde havde Peter en sjælden humanistisk instilling der spændte bredt omfattende historie, digt, kunst og meget andet. Peter mindede om en renaissanceperson en rigtig polyhistor.

Peter startede, efter studentereksamen, som landvæsenselev i slutningen af 50'erne og prøvede dermed det praktiske landbrug inden han begyndte på veterinærstudiet på Den Kgl. Veterinære og Landbohøjskole, hvorfra han blev dyrlæge i 1965.

Derefter begyndte hans forskningskarriere der førte frem til disputatsen "Metabolism of bovine immunoglobulin-G. A clinical and pathophysiological study" i 1970.

I begyndelsen af 70'erne var Peter med ved opstart af en række større parasitologiske forskningsprojekter, først omhandlende *F. hepatica* og derefter løbe- og tarmorme hos kvæg. Hovedsigtet med projekter var at studere parasiternes forekomst og smittepotentiale i løbet af året, viden der så gav grundlag for græsningstrategier, som forebyggende indgreb mod infektioner. Studierne gav også mulighed for at kunne gennemføre strategisk medicinsk behandling mod forskellige helminther hos kvæg. Projekterne blev gennemført bl.a. i Tøndermarsken og Lille Vildmose. Senere var Peter primus motor i nordiske projekter om helminther kvæg hos svin, projekter der viste Peters evne til at binde samme på mange projekter og mennesker.

I 1977 blev Peter lektor på KVL og senere i 1983 professor i parasitologi ved Sverige Land-brugsuniversitet i Uppsala.

Ved oprettelsen af de første forskningsprofessorater i Danmark fik Peter et af dem og dermed vendte han tilbage til Danmark i 1984. I sin nye stilling startede han mange

nye initiativer, samtidig med at han holdt kontakt til tidligere medarbejdere i Sverige og det meget fintmaskede verdensomspændende netværk han havde skabt igennem årene. I disse år begyndte Peter også et meget betydeligt arbejde med ulandsproblemer inden for uddannelse og forskning. Senere udbyggede han sin interessesfære til også at omfatte Baltikum, hvor han havde mange nære kontakter. Peters hovedinteresse var fortsat helminthologien i forbindelse med husdyrhold.

I 1990 blev Peter Nansen kaldet som professor i parasitologi ved KVL, det vil sige at han uden ansøgning fik tildelt et professorat, noget der kun sker sjældent, og det er et godt bevis på den store anerkendelse som Peter fik på baggrund af hans forskningsmæssige indsats.

Peters parasitologiske interesse spændte meget vidt, han arbejdede selv med husdyrenes helminther, han var meget interesseret i hvilke parasitter vikingernes husdyr havde (arkæologisk parasitologi) og parasitter hos grønlandske mumier, hvortil kom mange tværfaglige projekter omhandlende bl.a. schistosomer og parasitiske zoonoser.

Peter havde et visionært syn og forstod at kombinere metoder og viden fra andre fagområder, eksempelvis udnyttede han sin viden om isotoper til at mærke parasitstadier (miracidier og cercarier), så det var muligt at følge f.eks. infektion af mellemværtssnegle og slutværter og ved hjælp af radioaktiviteten måle infektionsrate. Peter var med ved opstart af biologisk bekæmpelse af løbe-tarmorm hos kvæg ved brug af nematodfangende svampe, som optræder i husdyrgødning. Et område der fortsat forskes intenst i.

I 1993, da de første tanker om den nye Danmarks Grundforskningsfond blev præsenteret, fik Peter mulighed for at bruge sin store tværfaglige interesse, og for hans glæde og engagement i biologi. Peter var pennefører og ideolog i processen med at udforme en ansøgning til Danmarks Grundforskningsfond med en stor opbakning af danske parasitologer. Den fremsendte ansøgningen blev imødekommet af Danmarks Grundforskningsfond og Center for Eksperimentel Parasitologi blev startet. Budgettet for de fem første år var på 50 millioner kroner. Ved udløbet af 1. periode i 1998 blev projektet yderligere forlænget for en ny femårig periode. Projektet omhandler en række grundvidenskabelig problemstillinger, der søges afklaret ved eksemplariske modelorganismer (*Ascaris*, *Oesophagostomum* og *Schistosoma*). Mange spændende resultater er kommet ud af projektet indtil nu og et meget stort internationalt engagement er opbygget og vedligeholdt. På CEP er der mange gæsteforskere fra andre i-lande, men også mange ph.d. studerende fra ulandene, kanaliseret gennem dansk ulandsbistand

Et af de sidste initiativer Peter var med til at sætte i gang var "Fjerkrænetværket", hvor indsatsen fokuseres på forsyning af kød til de fattigste af ulandenes befolkning, samt støtte til kvinder, som står for hønseholdet.

Peter nød stor agtelse i udlandet, havde en meget stor vennekreds, som han kommunikerede med regelmæssigt, det var ufatteligt så mange mennesker Peter kendte.

Peter Nansen opnåede igennem årene at få mange anerkendelser såvel på nationalt som internationalt niveau.

Peter var medstifter af Dansk Selskab for Parasitologi og meget engageret i Scandinavian Society for Parasitology, hvor han var æresmedlem. Kort tid før Peters død stod han som ankermand og vært for WAAVP konferencen i København - en meget stor succes, som klart viste Peters internationale profil.

Det er ikke muligt at beskrive alle Peters facetter. Alle der kendte ham har deres egne billeder og kan genkalde sig møder og oplevelser. Mange mennesker har haft gode og inspirerende møder med Peter. Mange har følt, hvordan han kunne sætte tanker i gang, som mandede ud i konkrete projekter. Mange ph.d. studerende, og yngre såvel som ældre forskere vil huske Peter som den store inspirator, en som altid var parat til at gå foran.

Peter er ikke mulig at erstatte, hans indsats inden for parasitologi vil være synlig i mange år fremover.

Ære være Peters minde

Flemming Frandsen

EMÜ
RAAMATUKOGU

SOCIETY NEWS

SCANDINAVIAN SOCIETY FOR PARASITOLOGY

Minutes from SSP board meeting 8. May 1999 in Reykjavik, Iceland

Present: Tellervo, Karl, Jorun, Tor Atle (reporter)

The meeting mainly discussed the agenda for the general meeting to be held on 11. May

The agenda will be:

1. Elections
2. Reports (Biannual report, treasurer, auditors, Editor of Bulletin)
3. New membership fee, new fee for subscription of Bulletin
4. New board
5. Next symposium
6. Any other business

Comments to agenda subsections:

1. Elections
 - Suggestion for chairman: Tor A. Bakke
 - Suggestion for reporter: Rita Daverdin
 - We need two persons to sign the minutes
2. Reports
 - Tellervo will present the biannual report from the board
 - Tor Atle will present the treasurers report
3. Fees
 - New fees will be suggested:
 - Ordinary members - 25 EURO or equivalent in country currency
 - Students - 10 EURO or equivalent in country currency
 - («PhD-students» have an income and are not regarded as students)
 - Subscription for SSP Bulletin - 40 EURO
4. New board
 - Suggested replacement for Katarina Gustafsson, Sweden will be Mats Wahlgren.
 - The rest of the board will take re-election
5. Next symposium
 - The next meeting should be held in Sweden, Mats Wahlgren will be asked to organise it
6. Any other business
 - Before the next telephone meeting (in the autumn), we should look at previous minutes several years back. Some decisions seem to have been forgotten.
 - The society started in 1966. At the next meeting, the 20th, held in Sweden, the society will be 35 years.

Minutes from SSP board meeting 11. May 1999 in Reykjavik, Iceland

Present: Tellervo, Karl, Jorun, Kirill Galaktionov (invited to subsection 5),
Tor Atle (reporter)

Agenda:

1. Experience from 19th SSP symposium
2. Next meeting
3. New members
4. SSP web-site
5. Joint meeting with the Russians
6. Any other business

1. There had been a lot of work in organising the symposium. Karl had done about 95%, Sigurður about 4% and Matthías about 1%. (The board thanked Karl for all the good work in organising a successful and pleasant symposium.) A prerequisite for a successful a symposium is a close co-operation between members of the organising committee. A negative experience was that the committee had received registration from many persons (mainly eastern countries) who never showed up. This means that a lot of work was unnecessarily done. For the future, the congress fee should be paid before abstract is accepted. We should make it clear the society can not pay for more than those who are invited plenary speakers. (At the Iceland symposium, all invited speaker paid the flight tickets themselves.)

The were too few students at the symposium, probably because it was too expensive to travel to Iceland. (Hopefully, more students will come to the next meeting in Stockholm.)

The board discussed how many topics and invited speakers there should be in a symposium. The conclusion was that this should be decided by the local organising committee.

There was also a discussion about the printing process for the Bulletin in connection to a symposium. If all abstracts were to be included, and errors and language are corrected, this would prove to be an impossible task for one person to complete. A professional person should read through the abstracts. The authors should send abstracts on disc or in e-mail.

2. The next meeting will be held in Stockholm in spring 2001. This should be announced in the SSP Bulletin.
3. All new members that had applied for membership before and during the symposium were accepted. The names should be presented in the SSP Bulletin.
4. SSP web-site

The general assembly decided that the society should have a web-site. The board discussed what should be present on the front page. It should be the logo and

name, and several icons for 1. the next meeting, 2. members of the board, 3. membership list and e-mail addresses, 4. foundation, history and description of society, 5. mission and purpose, 6. Bulletin with list of content.

5. Joint meeting with Russian parasitologists

A joint meeting with Russian parasitologists is scheduled to be held in year 2000 in St. Petersburg, preferably at the end of May or alternatively in September. (Be aware that the BSP meeting will be held in the autumn.) A tentative title for the symposium is «Ecological parasitology at the change of the millennium». The organising committee will consist of Kirill Galaktionov, Oleg Pugachev, Gediminas Valkiunas, Andrey Alekseev, Clive Kennedy and the board of SSP (Tellervo, Karl, Tor Atle, and in addition Kurt Buchmann). The symposium will be arranged by the local committee which consists of the Russians. The board of SSP with help with applications for money. Applications should be sent to: NorFa (deadline June/September, help from Tellervo), Clara Lachmanns fund (deadline end of April, help from Karl), Knut Høygaards fund (deadline two times per year, help from Karl), Ekteparet Sørli's fund (no deadlines (at present), help from Tor Atle). There should be applied for money to secretary work, translation and printing (of abstracts). A preliminary budget should be set up. How many participants could be expected?

Suggestions for invited speakers: Kennedy, Valtonen, Skorpung, Tinsley, Combes, Esch, Reed, Hudson, Pauline.

Tellervo will discuss the meeting with Kennedy and Combes at the meeting in Ceske Budejovice in August 1999.

6. The amount of information to the SSP members should increase. The Bulletin and a web-site should be used.
7. Mats Wahlgren, the head organiser of the 20th SSP symposium, should be invited to the next telephone meeting.

REPORT FROM THE GENERAL ASSEMBLY OF THE SCANDINAVIAN SOCIETY FOR PARASITOLOGY – Reykjavik, Iceland 11th May 1999.

The general assembly was held at Reykjavik, Iceland, 11.05.1999 after closing of the 19th SSP symposium.

Number of members attending the general assembly: 68

The general assembly opened with one minute's silence in commemoration of four members that have passed away since the last general assembly.

Agenda:

1. Election of chairperson of the general assembly:

Professor Karin Andersen was elected.

2. Election of secretary of the general assembly:

Dr. Rita Hartvigsen was elected.

3. Election of two members to approve the minutes of the general assembly:

Professor emeritus Bjørn Berland and professor Arne Skorping were elected.

4. Report on SSP activities over the last two years:

President Elsa Tellervo Valtonen reported on the activities of the SSP over the last two years. The president's report was accepted by the members. The president's report is enclosed with this document.

5. Report of the editor of the bulletin.

Editor Jorun Tharaldsen reported on the activities of the Bulletin over the last two years. She called for more papers to the bulletin, as well as more news from the members. The editor's report was accepted by the assembly.

6. Report from the treasurer with auditors' comments.

Treasurer Tor Atle Mo reported on the society's finances. The economy of the society is poor, mainly due to people failing to pay their membership fees. The arrangement with local treasurers in each country has worked out satisfactorily, and most members have accepted to pay arrears for the last four years. The membership number at present is 135, and 10 new members were registered during this symposium.

The treasurer's report was accepted by the assembly.

7. Granting the Board discharge from the previous two year period.

This was accepted by the assembly.

8. Election of board members.

The present board was re-elected.

9. Election of deputy board members.

Dr. Mats Wahlgren was elected new deputy board member from Sweden, replacing Katarina Gustavsson

10. Election of auditors and deputy auditor.

Present auditors and deputy auditor were re-elected.

11. Membership fee for the next two years.

The new membership fee is 25 euros for full members, and 10 euros for student members.

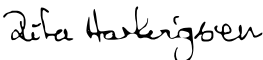
12. Time and location for the next symposium.

The next symposium will be held in Stockholm in year 2001. Dr. Mats Wahlgren has kindly accepted the responsibility to organise the meeting, for which the society is very grateful. The time of the year for the next symposium will be decided later.

13. Other business.

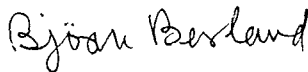
- A web-site for the society was discussed. It was agreed that this is a good idea. The editor of the bulletin will be in charge of the web-site. Tor Atle Mo and Arne Skorping were elected to assist the editor in the work with the web-site.
- Joint society meetings. It was agreed that the Scandinavian Society for Parasitology should be kept as a Scandinavian entity. But joint meetings with other societies is valuable, and we should always consider this possibility. However, expenses of joint meetings must be shared. The organisation of joint meetings must be improved, a matter the board is working on.
- Dr. Karl Skirnisson informed about the joint meeting between the Scandinavian Society and the Baltic Society on the topic "Bird-parasite interactions". The general impression was that it was a good meeting of high scientific value. The papers were well prepared and the abstracts were published in the bulletin.

Trondheim and Bergen, Norway 14th September 1999.



Rita Hartvigsen

Secretary



Bjørn Berland



Arne Skorping

ANNOUNCEMENT



to be held in Saint Petersburg, Russia
on 1-7 July, 2000

The Symposium is arranged on behalf of the Russian Parasitological Society (RSP) and the Scandinavian Society for parasitology (SSP). St. Petersburg was selected to be the conference place for different reasons. The city, founded by Peter The Great in 1703, is the "cultural capital" of Russia. There are a great number of famous historical monuments and architectural ensembles, including the Winter Palace, the Peter and Paul's Fortress, St. Isaac Cathedral, world class museums, such as the Hermitage and the Russian Museum, theatres (the Mariinsky Opera and Ballet Theatre, etc.), scientific research institutions and universities. St. Petersburg (Leningrad) is known as the cradle of ecological parasitology where its founder Prof. V.A. Dogiel had worked at the Leningrad (St. Petersburg) State University and at the Zoological Institute. Besides, geographically St. Petersburg is an excellent site for parasitologists from the East and the West to meet.

The purpose of the Symposium is to bring together scientists representing the eastern and western branches of ecological parasitology for exchanging ideas and information, to define and discuss the main trends in the development of ecological parasitology nowadays and in the nearest future. Possible ways to develop collaboration between ecological parasitologists from different countries will be

discussed. Two workshops are planned to be organised in the framework of the Symposium: "Ecological-parasitological problems of NW Europe" and "Parasites of marine and coastal birds in Arctic and Sub-Arctic regions".

Invited speakers will give lectures on parasite communities, population biology of parasites, strategies of parasite life-cycles, parasites and anthropogenic pressure, and new methods in ecological parasitology.

Participants are encouraged to give oral presentations or present posters. The official language of the symposium is English.

Plenary lectures and abstracts of other talks and posters will be published in the Bulletin of the SSP.

Ten postgraduate students and postdocs from Nordic and Baltic countries and NW-Russia, wishing to give talks at the workshop "Ecological-parasitological problems of NW-Europe" will be supported by the Nordic Academy for Advanced Studies (NorFA). Applications, including Curriculum vitae, should be sent to the local organising committee before 14 February 2000.

FINAL ANNOUNCEMENT WILL BE SENT OUT IN JANUARY.

Information about the Symposium will also be available on the Internet:
<http://www.zin.ru/conferences/eps>

Scientific organising committee:

Andrew Alekseev (Zoological Institute, Russia)
 E. Tellervo Valtonen (University of Jyväskylä, Finland)
 Oleg Pugachev (Zoological Institute, Russia)
 Kirill Galaktionov (Zoological Institute, Russia)
 Karl Skirnisson (Institute for Experimental Pathology, University of Iceland)
 Tor Atle Mo (National Veterinary Institute, Norway)
 Kurt Buchmann (Royal Veterinary and Agricultural University, Denmark)
 Clive Kennedy (University of Exeter, UK)
 Gediminas Valkiunas (Institute of Ecology, Lithuania)

Local organising committee:

Kirill Galaktionov (Zoological Institute, St. Petersburg)
 Oleg Pugachev (Zoological Institute, St. Petersburg)
 Irina Podvyaznaya (Zoological Institute, St. Petersburg)
 Helena Dubinina (Zoological Institute, St. Petersburg)
 Andrew Dobrovolskij (St. Petersburg State University)

Scandinavian Society for Parasitology
Nordisk Forening for Parasitologi

Membership application form

Name:

Date of birth:

Academic degree/title:

Working Address:

Private address:

e-mail:

Corresponding address: work____ **private**____

Area of parasitological interest:

Date and place

Signature

Please return this to:
Maria Vang Johansen
Danish Bilharziasis Laboratory
Jægersborg Alle 1 D
DK- 2920 Charlottenlund Denmark

ANNOUNCEMENT

Dansk Selskab for Parasitologi (The Danish Society for Parasitology) will arrange its annual Spring Symposium at the Royal Veterinary and Agricultural University, Copenhagen, on 10th March. The theme of the meeting will be "Parasitology crossing borders - *in memoriam* Peter Nansen"

For further information, please contact Michael Larsen (chairman of the DSP),
Royal Veterinary and Agricultural University,
Danish Centre for Experimental Parasitology
Ridebanevej 3
DK-1870 Fredriksberg C
DENMARK (e-mail: Michael.Larsen@vetmi.kvl.dk)

GUIDELINES FOR CONTRIBUTORS

All contributions should be submitted as word-processed manuscripts on floppy disk, accompanied by two exactly matching print-outs of good reading-quality. The preferred storage medium is a 3½ inch disk in MS-DOS or Windows compatible format. The text should be written in Word or WordPerfect or other word processing programs convertible to these. **With a Macintosh computer, save the file in the MS-DOS compatible option.** Please indicate the word processor (and version) used to generate the file, the type of computer, the operating system, and the formatted capacity of the diskette.

The articles/communications should normally not exceed 4 printed pages, including tables, figures, and references, and may contain a maximum of 2000 words if there are no figures or tables. The first page should show the title of the article, and the name(s) of the author(s). The authors' addresses should be given, and the complete correspondence address with telephone and telefax number (if available). The text should follow, without subheadings, but a short summary, maximum 100 words, may be included.

The text should be typed unjustified (unaligned right margins), without hyphenation (except for compound words), and at 1 ½ line spacing. Do not type page numbers. Label the hard copies by hand at the bottom of the page. Please ensure that the digit 1 and the letter 'l' have been used properly, likewise with the digit 0 and the letter 'O'. Do not use decorative formatting, such as boldface and centred headings, or underlining of titles or subheads.

Authors are obliged to follow the rules governing biological nomenclatures, as laid down in e.g. the *International Code of Zoological Nomenclature*. Disease names should follow the principles of *Standardized Nomenclature of Parasitic Diseases* (SNOPAD).

Figure legends must be included on the diskette, but the **figures will be handled conventionally**. They should be marked on the back with the title of the article and name of the (first) author.

Line drawings should be provided as good quality hard copies suitable for reproduction as submitted.

Photographs must be provided as glossy prints, and be of sufficiently high quality to allow reproduction on standard (not glossy) paper. Colour plates will not be printed.

References in the text should be stated by giving in brackets the name of the author and the year of publication, e.g. (Thornhill, 1987) or (Austin & Austin, 1987). If there are more than two authors, only the first name plus *et al.* is given (Lund-Larsen *et al.*, 1977). The reference list should be in alphabetical order, and follow the style set forth in *Uniform Requirements to Manuscripts Submitted to Biomedical Journals*, Br Med J 1988; 296: 401-5. References to journals should contain names and initials of the authors, article title, the abbreviated name of the journal, year of publication, volume, and first and last page numbers of the paper. Journals should be abbreviated according

to the "List of journals indexed in *Index Medicus*". Authors without access to this list may type the full name of the journal, and the Editor will take care of the abbreviations. If there are more than six authors, list only the first three and add '*et al*'. Personal communications and unpublished data should not be used as references, but may be inserted in the text (within parenthesis marks).

Examples of correct forms of references are given below:

Standard journal article:

Anonymous. Some facts on small animal practice. *Vet Rec* 1987; 120: 73

Horsberg TE, Berge GN, Høy T et al. Diklorvos som avlusningsmiddel for fisk: klinisk utprøving og toksisitetstesting. *Nor Vet Tidsskr* 1987; 99: 611-5

Lund-Larsen TR, Sundby A, Kruse V, Velle W. Relation between growth rate, serum somatomedin and plasma testosterone in young bulls. *J Anim Sci* 1977; 44: 189-94

Books and other monographs:

Austin B, Austin DA. Bacterial fish pathogens: disease in farmed and wild fish. Chichester: Ellis Horwood, 1987

McFerran JB, McNulty MS, eds. Acute virus infections of poultry: a seminar in the CEC programme, Brussels 1985. Dordrecht: Martinus Nijhoff, 1986. (Current topics in veterinary medicine and animal science 37)

Sosialdepartementet. Tsjernobylykkken: Rapport fra Helsedirektoratets rådgivende faggruppe. Oslo: Universitetsforlaget, 1987 (Norges offentlige utredninger NOU 1987: 1)

Thornhill JA. Renal endocrinology. In: Drazner FH, ed. Small animal endocrinology. New York: Churchill Livingstone, 1987: 315-39

The manuscript (diskette and paper copies) should be sent to one of the editors in your country, see inside of back cover. Label the diskette with the name of the (first) author. Manuscripts are accepted for publication after review and recommendation by the Editorial Board. Authors will be notified by the Editor-in-Chief about final acceptance and expected time of publication.

REPRINTS WILL NOT BE AVAILABLE.

In the interest of speed, no proofs will be sent to authors. It is therefore of vital importance that the manuscripts are carefully checked before submission.

BULLETIN OF THE SCANDINAVIAN SOCIETY FOR PARASITOLGY

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**BULLETIN OF THE SCANDINAVIAN
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VOL. 9 No. 2

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