Equator : informatieblad over veterinaire aspecten van ontwikkelingssamenwerking

EQUATOR

VOLUME 8, NO.1 NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

ISSN 0923-3334

EQUATOR is a periodical of the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University.

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Printed by
Elinkwijk b.v.

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EQUATOR is published bi-monthly.

Subscription is free of charge. For changes in address and termination of subscription please return the corrected label to the editorial office.

January/February, 1996

from the editor

This issue of EQUATOR is the first issue of 1996, the year in which the Faculty of Veterinary Medicine celebrates 175 years of veterinary education in the Netherlands (175 VET). 1821 namely was the year a State Veterinary School was established in Utrecht, which became the only Faculty of Veterinary Medicine in the Netherlands. 1996 is also the year in which Utrecht University commemorates its 360th birthday. The festivities will culminate in the week of 6-11 May, 1996. All veterinarians who happen to be in Utrecht that week are cordially invited to visit the Faculty and celebrate with us.

Your special attention is also drawn to two symposia which will take place in the frame of 175 VET and which will be of special interest to the readers of EQUATOR. On Friday, 10 May an international symposium on world-wide trends in veterinary education will be organized; on Friday, 27 September this year's symposium on Tropical Animal Health and Production will be held. This years' theme is: 'Urbanization: Veterinary public health consequences'. More information on the programme can be obtained from the lustrum committee, the Conspiratorium, P.O. Box 80.163, NL-3508 TD Utrecht.

During this lustrum year, EQUATOR will pay attention to the history of (tropical) veterinary medicine. Moreover, 1996 is not only the year that we will look backwards, it also time to look forward, as it is the start of a new episode in the collaboration between the Utrecht Faculty of Veterinary Medicine and what has been its main partner institute in Africa over the past 10 years, the Faculty of Veterinary Science of the University of Zimbabwe. New challenges and opportunities are ahead on both sides of the equator.

1996 is also a year of changes for EQUATOR itself. Merel Langelaar resigned from the editorial board because her graduation is near. Another change is, as you will have noticed, the colour of the front page, but the major change is that in the future all issues of EQUATOR will be published in the English language. The board is of the opinion that the alternating publication of Dutch and English editions is no longer expedient. The main objective after all is to publish a newsletter on veterinary aspects of development cooperation. And as EQUATOR is finding its way to 62 countries located on all continents, we expect a lot of the readers benefit from this change.

TRAINEESHIPS IN THE TROPICS

Subclinical mastitis of cattle in the Nile delta

In February last year, Laurens Mol, a Dutch veterinarian who was at that time working in Cairo, Egypt (EQUATOR volume 7, no. 4/5, September 1995) was on leave in the Netherlands. He was looking for a veterinary student to carry out a study on subclinical mastitis in the Nile delta, a region in which the programme he was working for was active. He asked Daan Vink, chairman of the foundation *Diergeneeskunde in Ontwikkelingssamenwerking* (Veterinary Medicine in Development Cooperation) whether he knew a student who would be willing and capable to take on such a study on a short term. "Well yes", he replied, "I do, intimately!" Daan could spare the time, and had, as he expresses it, nothing to lose. So, in April, 1995 he arrived in Egypt to start his traineeship in the tropics.

Geographical passion

As a child, I would take the monumental Times Reference Atlas of the World out of my parents' bookcase, open it on my lap and spend hours "globetrotting": from Abidjan to Alma Ata, from Rio de Janeiro to Rangoon... I suppose this was what is termed a "formative experience". My geographical passion persisted: in the past four years I have done a lot of work for the Foundation DIO and I hope very much to pursue a carreer of working in developing countries.

Preparations

The study was centred on a large, privately-owned, modern commercial dairy farm some distance to the north of Cairo. My task was to sort out the prevalence of the major pathogens and the etiology of subclinical mastitis on this farm. The study would also include a number of small-scale local farms with traditional management systems. It would also be important to analyse patterns in antibiotic resistance, as there was a suspicion that rampant and uncontrolled misuse of antibiotics had led to a significant level of resistance. Laurens warned me that I had to work independently to a large degree. He would assist and support me as much as he could, but he would be quite busy with his other commitments. Furthermore his practical knowledge of microbiology was limited. A challenging prospect for me!

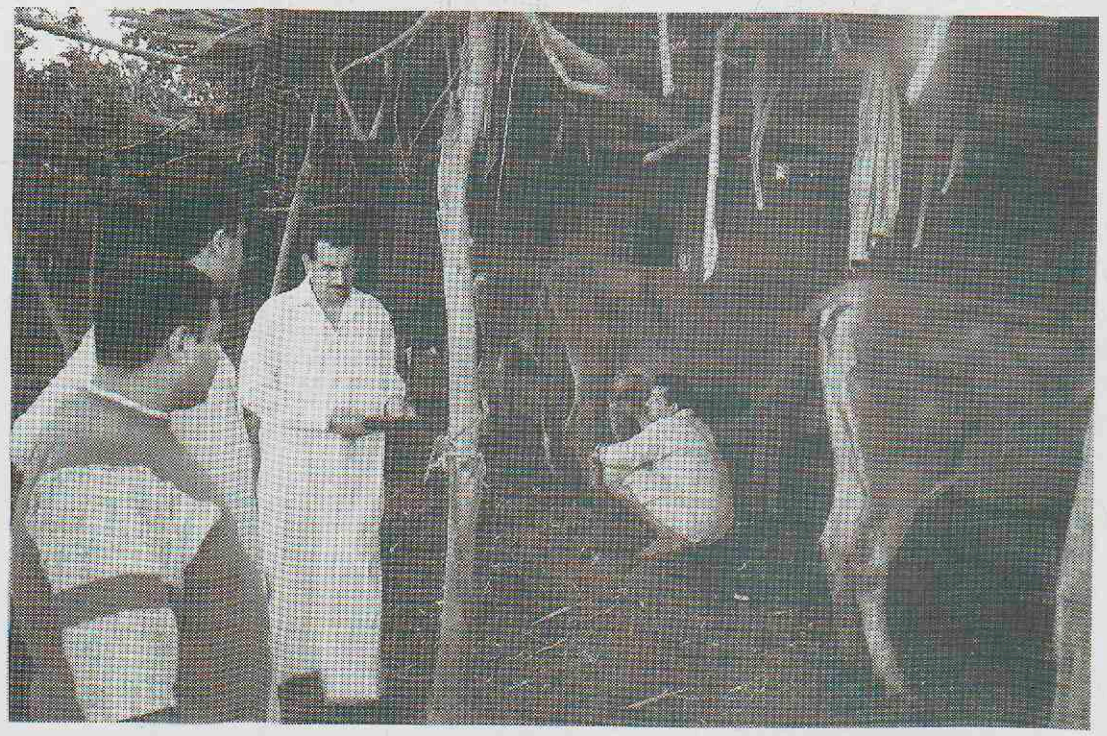
I spent the next six weeks with frantically looking up and photocopying literature, defining my objectives and undertaking preparations and precautions as much as I could. My plane touched down on Cairo airport at the beginning of April and I "established" myself on the farm on which the bulk of my research was to take place a week later.

Working conditions in Egypt

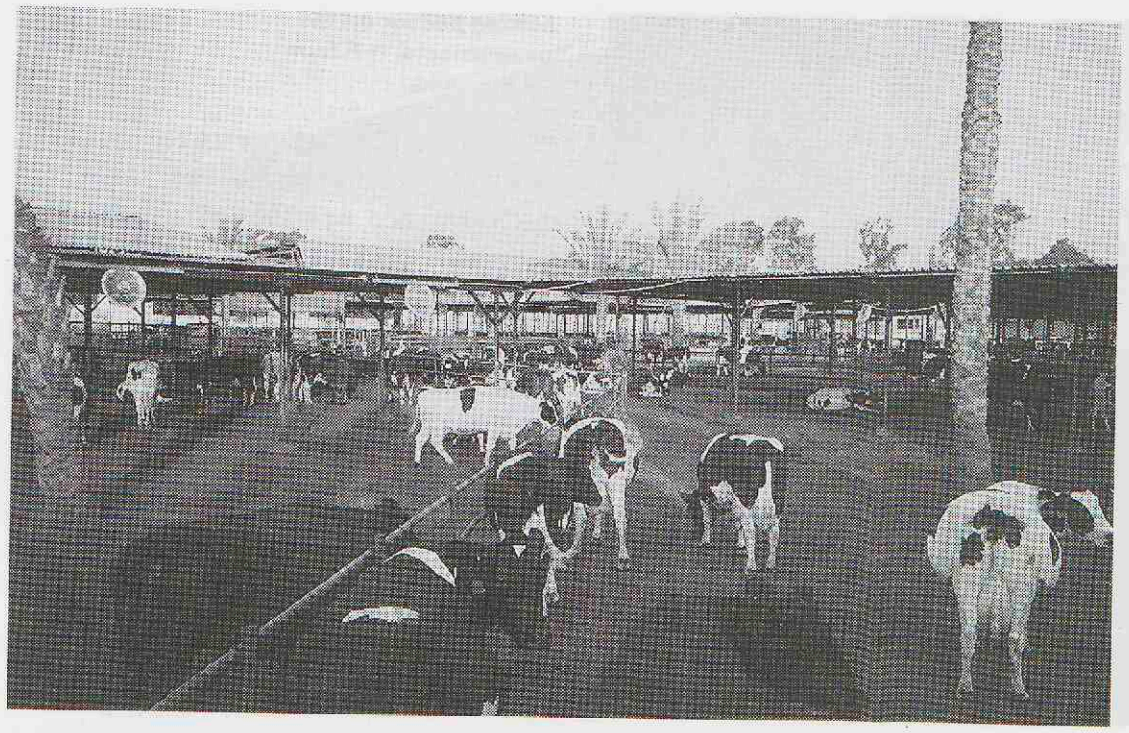
I was rather impressed with the farm. It had approximately 600 Holstein-Fricsian dairy cows, and also a number of calves, heifers and bulls. The cows were housed in paddocks on a bedding of loose earth; these paddocks were partially covered to provide shade. It was a zero grazing system, the cows were fed on maize silage with mineral supplements, and seasonal "extras" such as fodder beets. The milking parlour was in a very good state, a lot of attention was paid to milking hygiene and technique.

The laboratory was a different story. A few years before another lab room had been used. However, the veterinarian using it had stopped his work and nobody had taken his place. It was a dark, dirty little place filled with broken glass and the pungent smell of dust and chemical fumes. A new room was being built, but it was not yet operable. I was to salvage the equipment from the old lab, which was all of Eastern European and Russian origin - the legacy of Egypt's previous political sympathies. These had also led to a top-heavy bureaucratic system which churns out a glut of veterinarians without being able to provide efficient and effective veterinary services.

So, my first few weeks were occupied with preparing my new lab room. It



Sample taking on a small local farm (Photo: Vink)



Kassem farm (Photo: Vink)

turned out (unsurprisingly) that much of my apparatus was defective - incubators with crazy thermostats, a leaky water-distiller, a refrigerator with faulty wiring. It required a measure of improvisation to get everything to work. However, it was stimulating to watch this lab taking form, and preparing it for the work that was to follow.

Meanwhile, I had struck up some friendships on the farm. This was not easy, as nobody had any fluency in English. This led to a situation in which communication resembled a sort of cross-lingual Pictionary. But there was a relaxed cameraderie among the men, who were obviously very curious what exactly I was planning to do. I was also shown a lot of Egyptian hospitality by the owner of the farm, my host and "sponsor" Mr. Hassan Kassem, and his two sons Mohamed and Ahmed.

Obtaining materials

During the first weeks, I was in Cairo regularly to try to procure the culture media and other materials I needed. While I was still in the Netherlands I had been assured that these would be obtainable. But now, to my and Mohamed's increasing vexation, it turned out that this was not the case. We spent days criss-crossing Cairo, visiting supplier after supplier, but to no avail... Finally there was no other option than to send a fax to the Netherlands requesting for the materials to be sent to Egypt by express delivery. Communication problems slowed things down further, and I was getting very impatient as my time was ticking away. At last we received a mesage from Egyptian customs that our parcel had arrived. Mohamed and I spent almost a day in getting it through customs - sealed pots containing a white powdery substance aroused much suspicion!

One private and two government farms

Finally, after six weeks, I was ready to pour my first batch of plates. Almost half of my time had gone, and I felt I had made little progress. However, the advantage of the delay was that I had ample opportunity to read up my literature, make my preparations and refine my research protocols. After consulting with Laurens and others at the head office in Cairo, we decided to expand the study to include two government dairy farms with Holstein-Frisian cows and milking buffaloes. Besides, we felt that it was also important to determine which cowside diagnostic tests for mastitis were the most useful and practical ones. I was now fully prepared to launch myself into my research.

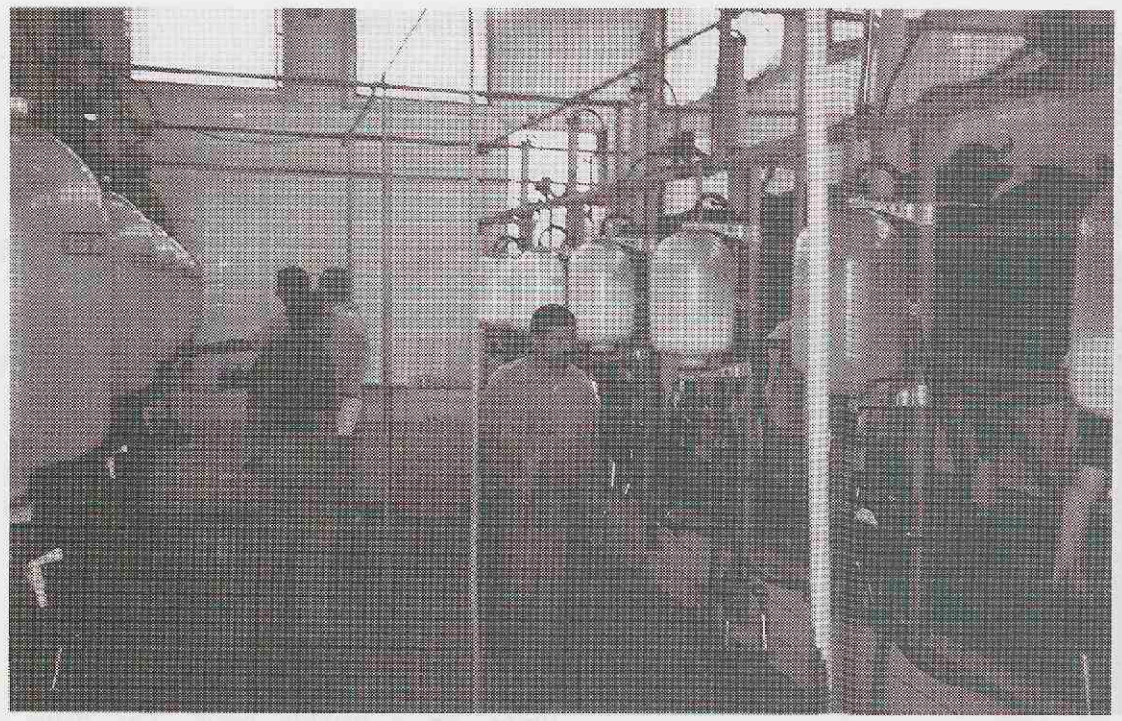
My greatest problem in the laboratory was contamination. 600 cows kicking up huge clouds of dust around the lab made "maintaining a sterile working environment" (as the manual specified) very difficult. I was unable to salvage any usable plates from the two first batches I poured, but as my confidence and skill (making good plates is an art) increased, I succeeded in bringing down the number of contaminated plates per batch to about a quarter. I enjoyed working in what I now considered "my" lab: it called for a measure of planning and efficiency, and a tight schedule.

I soon settled in to a fixed routine: preparatory activities during the mornings, processing my data during the afternoons and sample-taking during the evenings. My helpers in the milking parlour and myself became quite efficient: we could sample twelve cows per evening without any trouble. I immediately inoculated and incubated these samples, but during the scorching summer months (there was a period when my freshly-poured agar plates, which solidify at 42°C, had to be placed in the fridge to gel properly) it was more pleasant to work during the early morning hours and later in the evenings, than during the daytime.

I visited the government farms four times, on a weekly basis. The drive through the Nile delta - which is intensively irrigated and cultivated, densely populated and very green and lush - to these farms was quite memorable. The conditions on the Holstein-Frisian station were much poorer than on the Kassem's farm; the milking parlour was dirty, insufficient attention was being paid to hygiene, milking technique and management of the herd. From the cowside diagnostic tests I performed I got the impression that there was a large mastitis problem here, although there was little concern about this. The milking buffaloes were hand-milked, and what struck me initially was that the prevalence of mastitis seemed to be significantly lower. My findings in the laboratory confirmed these suspicions.

Small local farms

For the third part of my study, I was taken into the little villages in the vicinity of the Kassem farm to take samples on the very small local farms. These generally had one to eight buffaloes or cows of the local breed. These animals are not only used for milking, but also for draught power and meat. They are typically tethered in stalls behind or next to the farmhouses, and are fed on roughage, Egyptian clover, rice straw and perhaps some concentrates. As these animals are used on the lands all day, we did our sample-taking in the evenings. This was not very convenient from a practical viewpoint: taking sterile milk samples by torchlight, in a dusty stall, is not ideal! It was also slow work: after sampling each farm, we were abundantly treated to cups of tea, which would have been offensive to refuse. Although I had picked up



Milking parlour on the governmental H-F farm (Photo: Vink)

enough Arabic to express myself slightly, it was difficult to explain to the farmers what I was going to do to their milk. The chauffeur who accompanied me also spoke little English, but could at least provide some explanation to these farmers. These trips into the rural villages gave me some insight into the way of life of the people. The hospitality and friendliness with which they received me was striking.

Results

The six weeks my practical work lasted passed in a blur of activity. After this period, I started to compile, analyse and compare my data. I was surprised to find out how illustrative the results were. There was no significant subclinical mastitis problem on the well-managed Kassem farm, where *Staphylococcus aureus* was the predominant pathogen. This was in stark contrast to the governmental Holstein-Friesian farm; here the prevalence was >60% on an individual animal basis, and *Streptococcus agalactiae* accounted for the largest part of this. This is a contagious pathogen which can fairly easily be eliminated under good management conditions. The mastitis prevalence on the governmental buffalo farm and on the small-scale local farms was roughly similar at approximately 20%. The etiology here was almost exclusively *Staphylococcus aureus*, with some environmental pathogens. What gave cause for alarm was that the levels of antibiotic resistance were indeed excessive. An interesting fact was that this resistance was the highest for the pathogens isolated on the small farms; there was apparently less control over the distribution and usage of these drugs here. Concerning the cowside diagnostic tests we determined that the California Mastitis Test was the test of choice; an electrical conductivity test was unreliable as the distribution of the values of the readings varied per population group, and a pH-indicator test was insufficiently sensitive to be very useful.

Satisfaction in the end

Despite the initial problems, which I suppose were inevitable, the study yielded the kind of results from which concrete conclusions could be derived. I was extremely thankful for this. The whole experience is one I look back to with a lot of satisfaction! I learned not only to implement a microbiological field study, and some epidemiology, but also the politics and tactfulness required to bring this kind of operation to a successful conclusion. And, very important, I learned different aspects of the Egyptian, Islamic and Arabic culture.

Il'hamdu'lillah!

Daan Vink

BIC NEWS KVL

Collaboration between Harare and Utrecht enters a new Phase

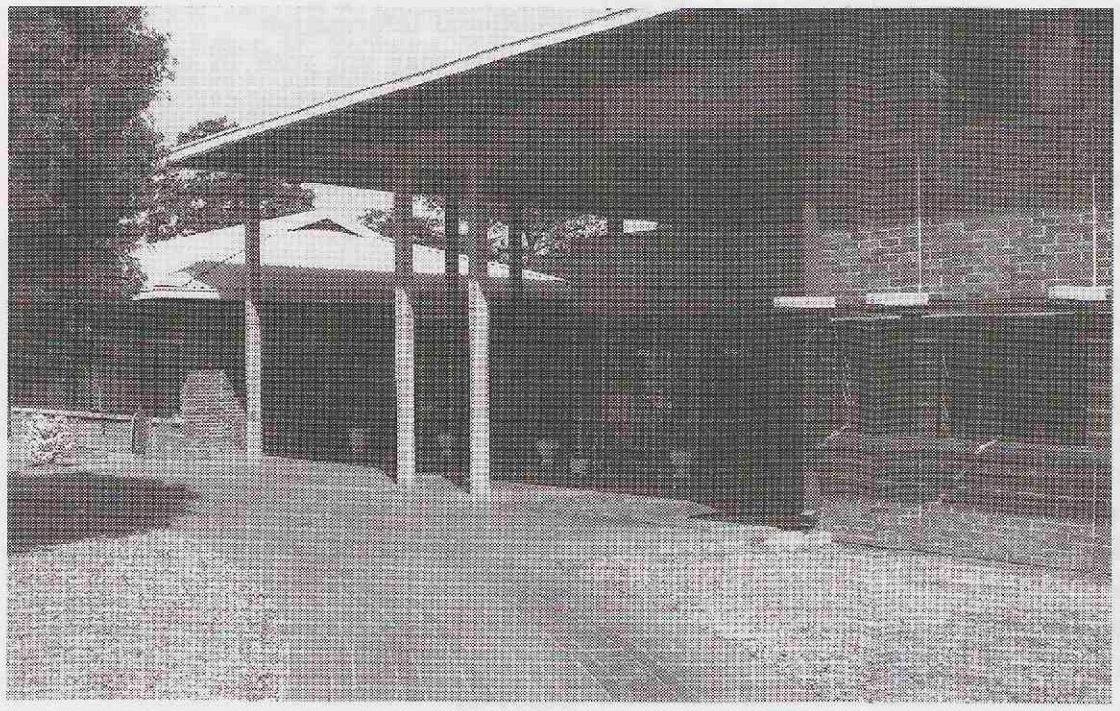
On 24 November, 1995, the last signature, the one of the Head of the Delegation of the Commission of the European Communities in Zimbabwe, was placed under a new Link Service Contract between the Faculty of Veterinary Science of the University of Zimbabwe (UZ) and a consortium of the Faculty of Veterinary Medicine of Utrecht University (UU) and the Royal Veterinary and Agricultural University of Copenhagen (KVL). The Link Service Contract covers a period of 2 years and is financially supported by the European Union (EU) with an amount of just over ECU 1,3 million. The link project is part of an EU support programme (under the Lomé IV Convention) of ECU 9,1 million over a period of 4 years for the Faculty of Veterinary Science in Harare.

The UZ veterinary faculty

From the start of the establishment of the veterinary faculty in Harare in 1982, UZ has received substantial support from the EU for constructing and equipping the veterinary faculty. Moreover, support was provided for the training of academic and technical staff, as well as the means to invite visiting lecturers and external examiners. The faculty has developed very well and provides veterinary training for students from the SADC region. The veterinary education has a duration of five years and is of good academic standard. Emphasis in the final years is on veterinary problems which hamper rural development in the southern African region.

Collaboration between Utrecht and southern Africa

A structural collaboration between the



The main entrance of the Faculty of Veterinary Science of the University of Zimbabwe (Photo: Otter)

veterinary faculties of Harare and Utrecht exists since 1985. Moreover, the collaboration between the veterinary faculties of Utrecht, Harare and Maputo is an important component of the long-term commitment of Utrecht University to focus its international collaboration on universities in the southern African region.

In 1994 the EU support for a linkage project between Harare and Utrecht came to an end. However, the authorities of the University of Zimbabwe realizing the benefits of a linkage project with a European veterinary institution, included again a request for a linkage project in their application for a grant from to the European Development Fund. A restricted tender procedure for the link contract was started. Six veterinary schools located in Denmark, Germany, Portugal, the Netherlands and the United Kingdom were selected by Harare and were requested to apply for the contract.

Utrecht and Copenhagen join hands

The Faculty of Veterinary Medicine of Utrecht University joint hands with the Royal Veterinary and Agriculture University of Copenhagen and formed a consortium which presented a proposal for the Link Service Contract with Harare. The contract was granted last November to this consortium. Moreover, it was agreed that opportunities for other European veterinary schools to participate will remain open.

The new link-project

The project includes two longterm experts positions; candidates from Utrecht in herd health and from Copenhagen in animal production were submitted with the tender proposal. They were accepted by UZ and will be based for 2 years in the Department of Clinical Veterinary Science. Further support for teaching and for collaborative research will be through short-term exchange visits (up to 6 weeks) of UZ academic and technical staff to Utrecht, Copenhagen and elsewhere in Europe and vice-versa. Fifteen collaborative research projects, mainly on veterinary problems in relation to smallholder farms, are part of the project. The EU support for Harare also includes staff development in the form of fellowships for study for higher degrees at European Universities. To complete the broad scope of the collaboration, support is provided for the purchase of teaching materials. For the first time exchange of undergraduate students between Harare, Utrecht and Copenhagen will be an integral part of the link project.

No doubt you will read more about this project in EQUATOR in the coming years.

R.W. Paling

VACANCIES INTERNATIONAAL COOPERATION

This section contains vacancy announcements which the editorial board considers to be of possible interest to Dutch veterinarians. Besides vacancies that will be taken from Vacatureblad Internationale Samenwerking, Tijdschrift voor Diergeneeskunde, Veterinary Record, Intro vacatures (RPD Advies/ Ministry of Internal Affairs) etc., there will be room for personnel advertisements. For further information about the vacancies please contact the institution or company directly.

Pan American Health Organization (PAHO)

CENTRE DIRECTOR (f/m)
(M.D. or D.V.M.)

At the Division Disease Prevention and Control (HCP) of the PAHO in **Martinez, Argentina** (INPPAZ).

(Vacancy Notice Nr. 95/PAHO/44; Post Nr. 5957)

Duties

Directing the programme of activities of the Institute. Directing the activities assigned to the Institute related to planning, organization, implementation, monitoring and evaluation of national programmes in food protection. Promoting and developing international cooperation with the goal to establish unified hemispheric efforts to prevent, control and eliminate major zoonoses. Organizing and promoting activities to strengthen national laboratories for microbiological and chemical residue analysis of foods. Organizing and promoting activities to strengthen food safety education and inspection programs. Directing activities to organize and develop international surveillance systems for food-borne diseases and major zoonoses and to provide related information to member countries.

Cooperating with governments of member countries in the design, planning and execution of proposals for soliciting external financing for research and field activities in food safety, animal health, and veterinary public health programmes. Coordinating with the intersectoral programmatic committee of Argentina, all activities regarding the technical and administrative actions of the Institute as they pertain to the programme of technical cooperation to the host country. Representing the Pan American Health Organization, at all times, in a manner compatible with the integrity and leadership expected from its officers.

Qualifications
An M.D. or D.V.M. from a recognized university with postgraduate training to the master's degree level in Public Health, Veterinary Public Health, Epidemiology, Food Science, or a related field or a PhD in a field or science related to Food Protection including specialized studies in Public Health, Veterinary Public Health, or Epidemiology.
At national level: ten years of experience in all aspects of administration and implementation of food protection and zoonoses programmes, as well as experience in the design, planning, execution, and evaluation of research projects on food protection and zoonoses; at least six years should be as director or other senior level position in food protection or zoonoses control programs.
At international level: five years of international experience providing technical cooperation in food protection and zoonoses. Very good knowledge of Spanish and English.

Remuneration
Salary per annum net of taxes (grade P 5). With dependents US$ 57,806 + post adjustment US$ 34,221 + hardship/mobility US$ 2706. Without dependents US$ 53,611 + post adjustment US$ 31,738 + hardship/mobility US$ 2030.

Additional Information
Smokers may not wish to apply since PAHO/WHO's working environment is smoke-free. We encourage applications from women. Applicants will be contacted only if they are under serious consideration.

Duration
Two years, first year probationary period.

Closing Date
29 February, 1996.

Applications
PAHO, 525 23rd Street, N.W., 20037 Washington DC, USA (Tel: +1.202-.8613192)

(From: INTRO Vacatures, 9 February 1996, nr. 6).

RECENT PUBLICATIONS (19)

Scientific publications of the Faculty of Veterinary Medicine and other research institutes in The Netherlands, relevant to livestock production and health in the tropics as well as titles of papers by Dutch veterinary scientists working on animal health and production topics in relation to developing countries, will be included. Please inform the editor of your publications so we can bring them to the attention of the readers of EQUATOR. For reprints contact the authors directly, their addresses can be obtained from the editorial office. Copies of the 'Abstracts of the 6th Symposium on Tropical Animal Health and Production. Helminth diseases of ruminants: diagnosis, epidemiology and control. 6 October, 1995, Utrecht' can also be obtained from the editorial office.

ANIMAL HEALTH

Ba, S.B., Udo, H.M.J. and Zwart, D. (1996). Impact of veterinary treatments on goat mortality and offtake in the semi-arid area of Mali. Small Ruminant Research 19: 1-8.

Boer, G.F. de, Roozelaar, D.J. van, Moormann, R.J., Jeurissen, S.H.M., Wijngaard, J.C. van den, Hilbrink, F. and Koch, G. (1994). Interaction between chicken anaemia virus and live Newcastle disease vaccine. Avian Pathology 23: 263-275.

Otter, W. den, Hill, F.W.G., Klein, W.R., Everse, L.A., Ruitenberg, E.J., Ven, L.T.M. van der, Koten, J.W., Steerenberg, P.A., Faber, J.A.J. and Rutten, V.P.M.G. (1995). Ocular squamous cell carcinoma in Simmental cattle in Zimbabwe. American Journal of Veterinary Research 11: 1440-1444.

Terpstra, C. (1994). Hog cholera. In: Infectious diseases of livestock with special reference to southern Africa. Eds. J.A.W. Coetzen, G.R. Thomson and R.C. Tustin. Oxford University Press, Cape Town, Chapter 66, pp. 654-657.

Terpstra, C. (1994). Nairobi sheep disease. In: Infectious diseases of livestock with special reference to southern Africa. Eds. J.A.W. Coetzen, G.R. Thomson and R.C. Tustin. Oxford University Press, Cape Town, Chapter 72, pp. 718-722.

HELMINTH INFECTIONS

Eysker, M. and Ploeger, H.W. (1995). Value of present diagnostic methods for gastrointestinal nematode infections in ruminants. In: Abstracts of the 6th Symposium on Tropical Animal Health and Production. Helminth diseases of ruminants: diagnosis, epidemiology and control. Eds. R.W. Paling and J.H.A. de Gooijer, Utrecht, 6 October, 1995, Utrecht University, Utrecht. pp. 15-16.

Schallig, H.D.F.H., Moyo, D.Z., Leeuwen, M.A.W. van, Hulscher, H.I. ten, Kolk, S.M., Verstrepen, B.E., Kooyman, F.N.J., Aar, W.M. van der, Hendrikx, W.M.L., Eysker, M., Bernadina, W.E., Boersema, J.H. and Cornelissen, A.W.C.A. (1995). Recent developments towards immuno-diagnosis and immunization against *Haemonchus*. In: Abstracts of the 6th Symposium on Tropical Animal Health and Production. Helminth diseases of ruminants: diagnosis, epidemiology and control. Eds. R.W. Paling and J.H.A. de Gooijer, Utrecht, 6 October, 1995, Utrecht University, Utrecht. pp. 17-21.

REPRODUCTION

Kruip, T.A.M., Boni, R., Wurth, Y.A., Roelofsen, M.W.M., Pieterse, M.C. (1994). Potential use of ovum pick-up for embryo production and breeding of cattle. Theriogenology 42: 675-684.

TICK-BORNE DISEASES, THEIR AGENTS AND VECTORS

Jongejan, F., Kok, J.B. de, Weide, M. van der and Oliveira, C. d' (1994). Diagnosis of *Theileria annulata* infection in carrier cattle and *Hyalomma* ticks by PCR and development of an ELISA based on a recombinant 30 kDA merozoite surface antigen. In: Proceedings of the European Union third coordination meeting on Tropical Theileriosis, Antalya, Turkey. Eds. R. Spooner and J. Campbell. The Roslin Institute, Roslin, pp. 59-63

Kock, N.D., Vliet, A.H.M. van, Charlton, K. and Jongejan, F. (1995). Detection of *Cowdria ruminantium* in blood and bone marrow samples from clinically normal, free-ranging Zimbabwean wild ungulates. Journal of Clinical Microbiology 33: 2501-2504.

Oliviera, C. d', Weide, M. van der, Shiels, B.R., Cornelissen, A.W.C.A. and Jongejan, F. (1994). Molecular cloning and expression of *Theileria annulata* merozoite surface antigens for use in defined subunit vaccines against tropical theileriosis. In: Proceedings of the European Union third coordination meeting on Tropical Theileriosis, Antalya, Turkey. Eds. R. Spooner and J. Campbell. The Roslin Institute, Roslin, pp. 140-143.

Oliviera, C. d', Weide, M. van der, Habela, M.A., Jacquiet, P. and Jongejan, F. (1995). Detection of *Theileria annulata* in blood samples of carrier cattle by PCR. Journal of Clinical Microbiology 33: 2665-2669.

Shiels, B.R., Oliviera, C. d', McKellar, S., Tait, A. and Hyde, G. (1994). Sequence and antigenic analysis of the major merozoite surface molecule of *Theileria* parasites. In: Proceedings of the European Union third coordination meeting on Tropical Theileriosis, Antalya, Turkey. Eds. R. Spooner and J. Campbell. The Roslin Institute, Roslin, pp. 136-139.

Uilenberg, G. (1994). Significance of tick-borne haemoparasite diseases to animal health in the tropics. In: Proceedings of the FAO Expert Consultation on the use of applicable biotechnological methods for diagnosing haemoparasites. Merida, Mexico, 4-6 October, 1993, Food and Agriculture Organization of the United Nations. Rome, pp. 7-28.

Uilenberg, G. (1995). International collaborative research: significance of tick-borne hemoparasitic diseases to world animal health. Veterinary Parasitology, 57: 19-41.

Uilenberg, G. (1995). Progress and priorities in research on heartwater. In: Program and Abstracts of the third Biennial Meeting of the STVM. San José, Costa Rica, May, 1995. pp. 23.

Vliet, A.H.M. van, Zeijst, B.A.M. van der, Camus, E., Mahan, S.M., Martinez, D. and Jongejan, F. (1995). Use of a specific immunogenic region on the *Cowdria ruminantium* MAP1 protein in a serological assay. Journal of Clinical Microbiology 33: 2405-2410.

VETERINARY PUBLIC HEALTH AND ZOONOSES

Soolingen, D. van, Haas, P.E.W. de, Haagsma, J., Eger, T., Hermans, P.W.M., Ritacco, V., Alito, A. and Embden, J.D.A. van (1994). Use of various genetic markers in differentiation of *Mycobacterium bovis* strains from animals and humans and for studying epidemiology of bovine tuberculosis. Journal of Clinical Microbiology 32: 2425-2433.

CALENDAR 1996

Beijing, P.R. China
19 - 22 March, 1996
First China International Annual meeting on Agriculture Science and Technology: 'Agro Annual Meeting China 96'. Including: Symposium, exhibition trading. Organized by: Chinese Association of Agricultural Science Societies and Dep. of Animal Husbandry and Health, Ministry of Agriculture. Theme: Animal industry and animal product processing. Symposium registration fee us$ 350. Closing date: 20 December, 1995. Location: Beijing International Convention Centre. Information and registration: Mr. Zhao Weining, Dep. of Animal Husbandry and Health, Ministry of Agriculture, Add: No. 11, Nong Zhanguan Nanli, Beijing 100026 (Tel.: +86.10.4192850, telefax: +86.10.-4192468).

Veldhoven, The Netherlands
6 - 8 May, 1996
EuroResidue III, Conference on residues of veterinary drugs in food. Organized by: Federation of European Chemical Societies (FECS) and Netherlands Society for Nutrition and food Technology. Subjects: Antibiotics; hormones and beta-agonists; LC/MS/MS applications; residues in cultivated fish; toxic effects of veterinary drugs; biosensors; 'bound' residues. Registration fee: Dfl. 625,-. Location: Koningshof Congress Centre. Information and registration: Dr. N. Haagsma, Dep. of Food of Animal Origin, Faculty of Veterinary Medicine, P.O. Box 80.175, 3508 TD Utrecht (Tel.: +31.30.-2535365, telefax: +31.30.2532365).

Barneveld, The Netherlands
24 June - 12 July, 1996
2nd Course on: Artificial insemination in pigs. Subjects: Collection of semen; Evaluation and processing of semen in the laboratory; Insemination and sow production control; Organization of an AI station and Selection of breeding stock. Fees including board and lodging: approx. Dfl. 7,000. Information: IPC Livestock Barneveld College, Dep. of International Studies and Cooperation Programmes, P.O. Box 64, 3770 AB Barneveld (Tel.: +31.342.414881, telefax: +31.342.492813, e-mail: ipcbarvr@knoware.nl).

Atlanta, USA
29 June - 1 July, 1996
14th Symposium on 'The Internationalization of veterinary Education. Strengths, Chal-

lenges and Opportunities'. Organized by: College of Veterinary Medicine, The University of Georgia. Objectives: Internationalization of veterinary medical curricula; Compare and contrast curricula from the various world sectors; define areas of international veterinary medicine important to the veterinary profession; establish goals in a veterinary college relative to international offerings etc. Information: College of Veterinary Medicine, The University of Georgia, Athens, Georgia 30602-7372 (Tel.: +1.706.-5425728).

Bologna, Italy
7 -10 July, 1996
14th International Pig Veterinary Society Congress. Information: New team, Via C. Ghiretti, I-43100 Parma (Tel.: +39.521.-293913, telefax: 39.521.294036, e-mail: IPVS96@bovet.cineca.it).

Great Keppel Island, Australia
8 -11 July, 1996
4th International Conference on Fertility Control for Wildlife Management. Location: Great Keppel Island, Queensland. Information: Fertility Control Conference, c/-ACTS, GPO Box 2200, Canberra, ACT 2601 (Tel.: +61.6.2573299, telefax: +61.6.2573256, e-mail: ACTS@ozemail.com.au).

St. Albans, United Kingdom
8 July - 16 August, 1996
8th International training course on identification of helminth parasites of economic importance. Information: Dr. L.M. Gibbons, International Institute of Parasitology, 395 A Hatfield Road, St. Albans, Herts AL4 0XU (Tel.: +44.1727.833151, telefax: +44.1727.-868721, e-mail CABI-IIP@cabi.org).

Jerusalem, Israel
4 -9 August, 1996
8th International Symposium of Veterinary Laboratory Diagnosticians and 3rd Joint OIE/WAVLD Session on biotechnology. Information: Secretariat, VIIIth International Symposium of Veterinary Laboratory Diagnosticians, P.O. Box 50006, Tel Aviv 61500 (Tel. +972.3.5140014, telefax: +972.3.-5175674).

Deventer, The Netherlands
19 August, 1996 - 6 June, 1997
International course on "Tropical Animal Production". Organized by: Larenstein International Agricultural College Deventer. Entry requirements: Diploma or degree in Animal Science and minimal 5 years relevant professional experience. Programme: Integrated approach to feed production, nutrition and reproduction of farm animals; management of farms and farm units; farm economics and extension approaches; farming systems analysis; rapid rural appraisal and an international excursion. Tuition fee: Dfl. 9,675; Board and lodging: Dfl.17,000. Closing date: 1 April, 1996. Information: Registry Larenstein I.A.C., P.O. Box 7, 7400 DA Deventer (Tel.: +31.570.684654, telefax: +31.570.684608).

Barneveld, The Netherlands
26 August 1996 - 27 February, 1997

26th International course on poultry husbandry and 26th International course on pig husbandry. Organized by: IPC Livestock, Barneveld College. These courses will run at the same time. Following these courses participation is possible in the 19th Animal Feed Training programme (AFTP), which runs from 3 March to 25 May, 1997. Direct entry in this last course is also possible. Fees including board and lodging: Poultry course: Dfl. 24,500; Pig course: Dfl. 24,500, Feed course; Dfl. 12,000 or 14,500 (direct entry). Closing date: 1 May, 1996. Information: IPC Livestock Barneveld College, Dep. of International Studies and Cooperation Programmes, P.O. Box 64, 3770 AB Barneveld (Tel.: +31.342.414881, telefax: +31.342.4-92813, e-mail: ipcbarvr@knoware.nl).

Utrecht, The Netherlands
3 September 1996 - 28 February, 1998
International Master Course "Herd Health and Epidemiology". Organized by: Department of Herd Health and Reproduction of the Faculty of Veterinary Medicine. Programme: The Master Science course offers an introduction to the application of epidemiological methods specifically applied to the field of population oriented studies in animals. Course fee: Dfl. 15,000,- (not including lodging etc.). Closing date for registration 1 July, 1996. Information and registration: Office for International Cooperation, Faculty of Veterinary Medicine, P.O. Box 80.163, 3508 TD Utrecht (Tel.: +31.30-.2532116, telefax: +31.30.2531815, e-mail: bic@bic.dgk.ruu.nl).

Wageningen, The Netherlands
September 1996 - March, 1998
MSc Animal Science and MSc Aquaculture Programmes. These courses are designed to impart advanced knowledge, modern approaches in scientific research, analytical skills and critical attitudes, to enable graduates to develop animal production or aquaculture in their own countries. Information: Office for Foreign Students, Wageningen Agricultural University, P.O. Box 453, 6700 AL Wageningen.

Liverpool, United Kingdom
September, 1996 - August, 1997
Master of Science Course in Veterinary Parasitology. Organized by: Liverpool School of Tropical Medicine. The course is composed of 3 terms: (1) Formal tuition covering all major groups of parasites and their vectors, (2) Some of the most important veterinary parasites are selected and studies in depth (3) Personal research project. Information: The joint Masters Course Secretary, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool L3 5QA (Tel.: +44.151.7089393, telefax: +44.151.-7088733, e-mail: williadj@liverpool.ac.uk).

Changchun, PR China
12 -14 September, 1996
2nd International Seminar on non tsetse-transmitted animal trypanosomiasis (with the participation of the OIE). Information: M. le Docteur L. Touatier, 228, bd du Président Wilson, 33000 Bordeaux, France.

Utrecht, The Netherlands
27 September, 1996
7th International symposium: Tropical Animal Health and Production. Theme: 'Urbanization: Veterinary public health consequences'. Organized by the Committee for the Advancement of Tropical veterinary Science (CATS) and the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University. Registration before 1 September, 1996 to Office for International Cooperation, Faculty of Veterinary Medicine. P.O. Box 80.163, 3508 TD Utrecht (Telefax: +31.30.2531815, e-mail bic@bic.dgk.ruu.nl).

Vienna, Austria
21 October - 15 November, 1996.
International Training Course on the Use of Molecular Techniques (PCR, DNA Probes) for the Diagnosis and Monitoring of the Major Livestock Diseases. Organized by: International Atomic Energy Agency with the support of the FAO/IAEA Joint Division of Nuclear Techniques in Food and Agriculture. Programme: (1) Introduction of concepts of the use of PCR and DNA probes in animal disease diagnosis and monitoring, (2) Provide practical training in these techniques, (3) Provide training in the set up of a diagnostic PCR laboratory. Location: Siebersdorf near Vienna. Application: On standard IAEA form 'Nomination for training course', through the official channels (Ministry of Foreign Affairs or UNDP Office) to: IAEA, P.O. Box 100, A-1400 Vienna (Telefax: +43.1.20607). Closing date: 19 August, 1996. IAEA scholarships are available for participants from developing countries IAEA.

Nagasaki, Japan
17 - 22 November, 1996
14th International Congress for Tropical Medicine and Malaria. 'New goals for the 21th century'. Organized by: Science council of Japan, Japanese Society of tropical Medicine and International federation for Tropical Medicine. Information, registration and submission of papers: Dr. Hideyo Itakura, Secretary General 14th ICTM Secretariat, c/o The Institute of Tropical Medicine, Nagasaki University, 1-1 2-4, Sakamoto, Nagasaki, 852 Japan.

EQUATOR

VOLUME 8, NO. 2 NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

ISSN 0923-3334

EQUATOR is a periodical of the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University.

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Printed by
Elinkwijk b.v.

Editorial Office
Faculty of Veterinary Medicine
Office for International Cooperation
P.O. Box 80.163
3508 TD UTRECHT
The Netherlands
Tel.: +31.30.2532116
Fax: +31.30.2531815
E-mail: bic@bic.dgk.ruu.nl

EQUATOR is published bi-monthly.

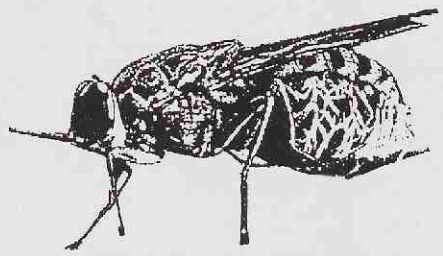
Subscription is free of charge. For changes in address and termination of subscription please return the corrected label to the editorial office.

March/April, 1996

from the editor

In this issue of EQUATOR we ask your attention for two aspects of international university cooperation. Linking faculties in the Netherlands through longterm collaborative programmes with faculties in Latin America or Africa provides the means for an efficient exchange of information, educational methods and technologies but also for exchange of staff and students. If such a link is of sufficiently long duration, and staff members develop good contacts, it also creates possibilities for collaborative research. A good measure for a successful link is fruitful collaborative research resulting in joint publications and academic degrees like MSc and PhD. The Faculty of Veterinary Medicine of Utrecht University gained experience during the last 10 years as partner in two of such linkage-projects. In the previous issue of EQUATOR we informed our readers about the link between Utrecht and Harare. In this issue we pay attention to the link with the School of Veterinary Medicine of the National University in Heredia, Costa Rica, a link which is approaching the end of the external financial support provided by the Netherlands' Ministry of Foreign Affairs.

The second aspect of international cooperation is in relation to the Netherlands system for obtaining the 'Doctor' or PhD degree. PhD-theses, as they are defended by the candidates are usually based on a number (5 or 6) of recently published scientific articles in international double refereed journals. There is no obligation that the research work is actually conducted at a university in the Netherlands nor is there a need to re-write the published articles in a special format. During a considerable period of 1 to 5 years, the candidate is guided and supervised by a promotor who must be a full professor at a university in the Netherlands. This system is particularly interesting for young scientists working at research institutes which are not universities. Through regular contacts with their supervisor in the Netherlands these researchers can do their research at the home institute, in for example Tanzania or Ethiopia (see the article on tsetse control is this EQUATOR), and defend their thesis at Utrecht University or Wageningen Agricultural University, when the subject is concerned with animal health or livestock production.



TSETSE CONTROL: RECENT SUCCESSES IN TANZANIA AND ETHIOPIA

Trypanosomiasis remains the most important constraint to livestock production on the African continent. Chemotherapy, using curative and prophylactic drugs, is the main method of control of the disease in cattle. The exploitation of the trypanotolerance trait of some breeds of large and small ruminants provides a solution in certain production systems. Immunological approaches to control the disease through vaccination are still under investigation. Only the eradication of the tsetse fly vector can remove the treat of the disease.

By coincidence two biologists defended their PhD theses on aspects of tsetse control almost at the same time at two universities in The Netherlands. On 19 December, 1995, Marc Vreysen from Belgium defended his thesis entitled: 'Radiation induced sterility to control tsetse flies. The effect of ionising radiation and hybridisation on tsetse biology and the use of the sterile insect technique in integrated tsetse control' at Wageningen Agricultural University. Three months later, on 22 February, 1996, Stephen Leak from the UK defended his thesis: 'A contribution to the epidemiology and understanding of tsetse-transmitted trypanosomiasis' at Utrecht University. In this article some of the results of these studies will be discussed. Emphasis will be on the applications of the control measures under field conditions at the respective study locations: Unguja island of Zanzibar, Tanzania and the Ghibe Valley in Ethiopia. For further reading a list of references is provided and readers who are interested in more details are invited to write to the authors[1].

Tsetse control

Numerous methods have been applied during the 20th century to reduce the number of tsetse flies and to limit their distribution. Sometimes with success. However, this success was often of a short duration due to re-invasion by the flies from neighbouring areas. Moreover, tsetse flies are still invading new areas where the climatical conditions are suitable for their survival. Tsetse control operations are relatively expensive and need to be of long duration. At present times, as we are heading towards the 21st century, only methods that are environmentally acceptable can be considered for public national or international funding. Refinement of existing tsetse control methods, application of combinations of the various control methods, adaptation of these methods to local environmental conditions and community acceptance and participation are the major issues in tsetse control for the next decade.

Specifically the use of the sterile insect technique (which involves the release of large numbers of reared and sterilized male tsetse resulting in the disruption of the reproduction cycle of the wild female flies) and the use of tsetse attracting targets, including animals themselves, that are treated with insecticides, are important options for control, which fulfil the environmental requirements.

Genetic control of tsetse flies

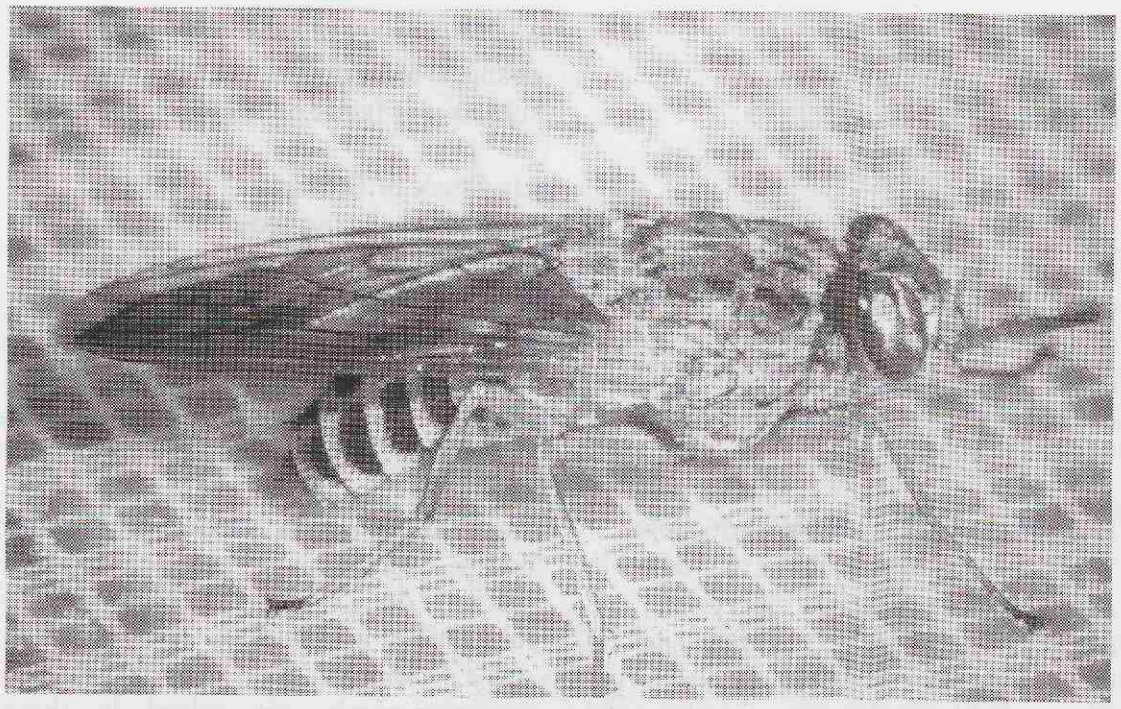
The induction of dominant lethal mutations by exposing tsetse flies as pupae or adults to ionising radiation and the use of hybrid sterility resulting from crosses of closely related tsetse (sub)-species, are potential methods of genetic control of tsetse flies. Marc Vreysen performed his basic research at the Entomology Unit of the laboratory of the International Atomic Energy Agency (IAEA) in Seibersdorf, Austria. His work was concerned with the effects of gamma radiation on the survival and reproductive biology of tsetse pupae and adult flies of four tsetse species, *Glossina brevipalpis*, *G. fuscipes fuscipes*, *G. tachinoides* and *G. austeni*. These studies identified the optimum age for radiation treatment of the pupae as well as the optimum dose to produce good quality sterile males.

The effect of hybridisation on the reproductive cycle was studied using the closely related species *G. palpalis palpalis* and *G. palpalis gambiensis*. Vreysen proposes the use of the high hybridisation capacity of these two subspecies, in combination with radiation induced sterility, for genetic control.

Tsetse control on Unguja island

Trypanosomiasis is a well known disease on Unguja island of Zanzibar, Tanzania. Surveys had shown that *G. austeni* was the only tsetse species on the island. With a cattle population of 45,000 head and small scale dairy

Dr. M.J.B. Vreysen, International Atomic Energy Agency (IAEA), URT/5/016, P.O. Box 2593, Zanzibar, Tanzania.
Dr. S.G.A. Leak, International Livestock Research Institute (ILRI), P.O. Box 30709, Nairobi, Kenya.



Membrane feeding is used in most tsetse breeding colonies (Photo: ILRI collection)

farming becoming increasingly important, programmes were developed to perform a tsetse survey, to execute a tsetse eradication programme and to design a reliable monitoring system. Being a relative small island (1,600 km^2), at 35 km from the mainland, infested with only one tsetse species, circumstances at Unguja were favourable to attempt an eradication programme. Following a successful trial in 1987, whereby local animals (cattle, goats and donkeys) were treated 5 times at 15-day intervals, with a residual synthetic pyrethroid, applied as a 'pour-on', an island-wide eradication effort was started. The 'pour-on' method was used in areas were livestock was present and insecticide impregnated screens (IIS) were placed in areas where there was no livestock. In this way a good level of control was achieved but the species was not eradicated from the island.

Monitoring of *Glossina austeni*

For the close monitoring of the *G. austeni* population alternative methods had to be developed, as tsetse of this species can hardly be caught by standard trapping methods using the biconical trap. Marc Vreysen improved the monitoring by using sticky panels with non-setting adhesive. He tested various shapes, colours and adhesives and came up with a legpanel, coloured blue on one side and white on the other, as the best way to monitor the fly population before and during the control operations.

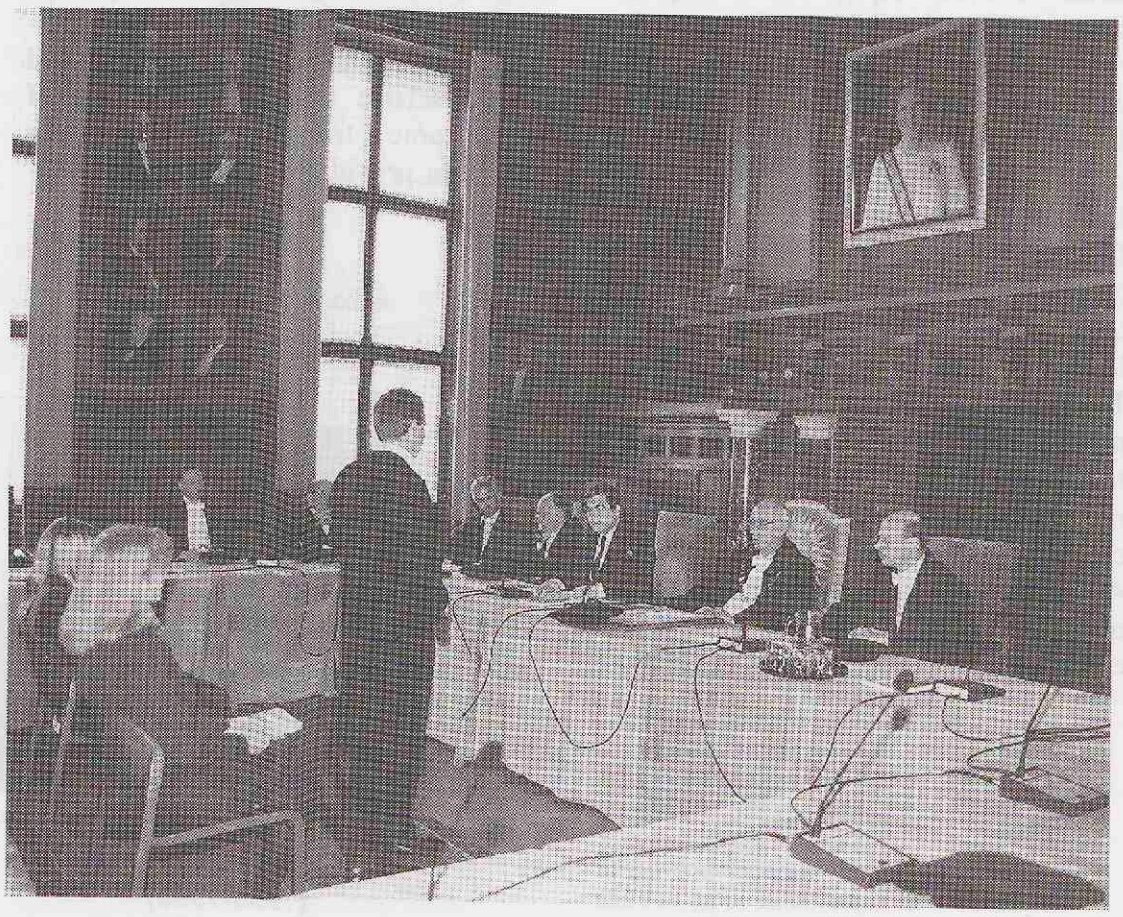
The SIT programme

In 1983, the government of Tanzania requested assistance from the IAEA for the eradication of *G. austeni* from Unguja by means of the sterile insect technique (SIT). A colony of *G. austeni*, originating from the Jozani forest of Unguja, was started at the Tsetse Research Station in Tanga. By mid 1990 the colony had reached a size of 40,000 females providing sufficient excess males to initiate pilot release studies on the island. The Jozani forest reserve, in the centre of the island, is the only remaining primary forest on the island and is considered the main focus of *G. austeni*.

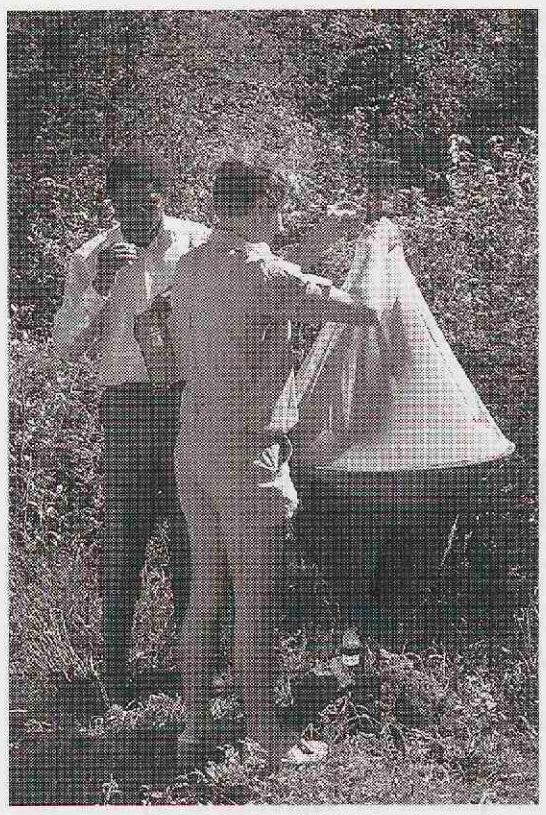
Suppression of the original fly population was required before releases of sterile males could be initiated. As livestock was not allowed in the reserve, the 'pour on' method could not be used. Blue insecticide impregnated screens (IIS) were deployed. After 18-24 months of suppression by ISS the number of flies had been sufficiently reduced to start the release of sterile males.

Some of the studies by Marc Vreysen were concerned with quality assessment of the gamma sterilised male tsetse at three points in time: after handling in the laboratory, during transport and after release in the field. More than 800,000 sterile males were transported, of which more than 90% was released in the Jozani forest. The average survival of released flies fluctuated between 5-7 days.

During the period of release the ratio of sterile males to wild females fluc-



Stephen Leak just after receiving his PhD diploma from his promotor Prof. Dr. A.W.C.A. Cornelissen in the Senate Hall of Utrecht University (Photo: Van der Veen)



For the trapping of tsetse flies the standard bi-conical trap was used in Ethiopia (Photo: Paling)

tuated mainly between 5 and 15, and an average of 3-5 sterile males to 1 wild male was reached. Although eradication could not be expected at this ratio, the native fly population remained very low and a level of 16-27% induced sterility was observed in the females. From calculations is was concluded that a persistent release of higher numbers of sterile males will most certainly culminate in the extinction of the fly on the island of Unguja.

African Trypanotolerant Livestock Network (ATLN)

The entomological studies by Stephen Leak were carried out at a range of sites forming the African Trypanotolerant Livestock Network (ATLN), which was coordinated by the International Livestock Centre for Africa (ILCA) in collaboration with the International Laboratory for Research on Animal Diseases (ILRAD) in Nairobi, Kenya. (recently these institutes were joint together under the name International Livestock Research Institute, ILRI). The ATLN aimed at determining the productivity of breeds of trypanotolerant and trypanosusceptible livestock raised under different management conditions and tsetse challenge levels. A further aim was to investigate ways of improving production through better control of trypanosomiasis by making use of existing control methods and developing new technologies. Studies in the Ghibe valley in Ethiopia combined chemotherapy and tsetse control by the insecticide impregnated screens and the 'pour on' method on cattle.

Dynamics of trypanosome infections

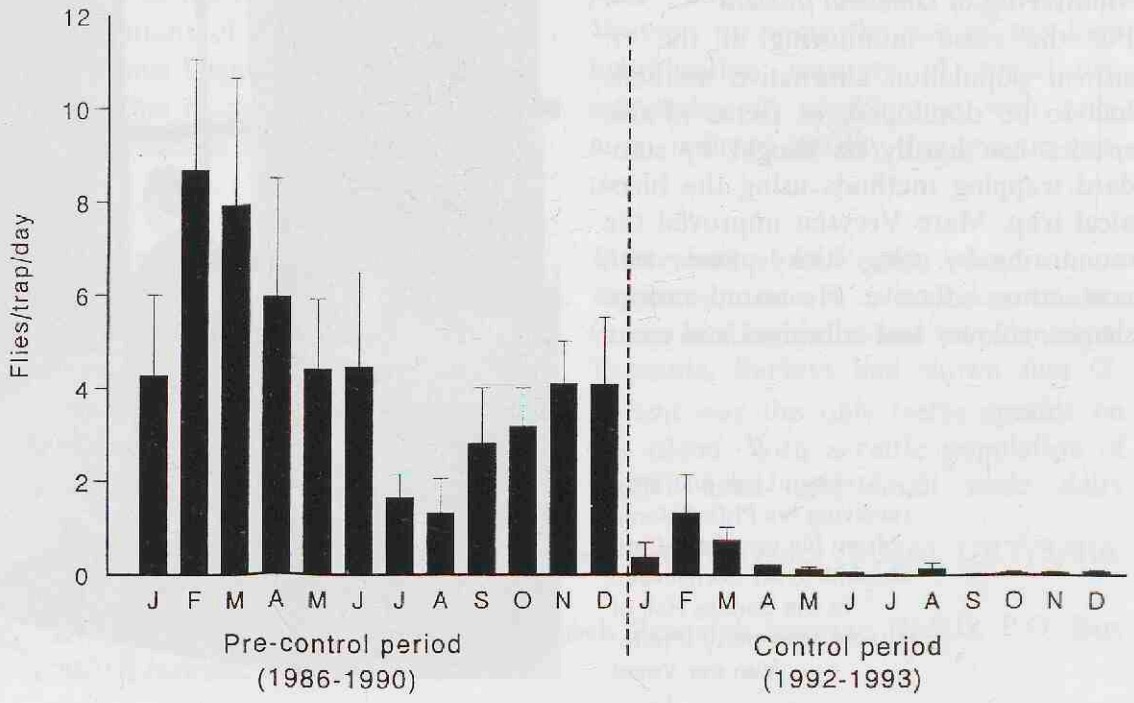
Trypanosome infections were studied in approximately 110,000 tsetse of 12 species or subspecies, at nine sites of the ATLN in 6 countries (Zaire, Ivory Coast, Ethiopia, Kenya, Zambia and Gabon) between 1983 and 1994. Infection rates with trypanosomes ranged from 0.2% (*G. fuscipes quanzensis* in Zaire) to 18% (*G. tabaniformis* in Gabon). The statistical analysis performed by Stephen Leak indicated that the prevalence of trypanosome infections increased with age for both *Trypanosoma vivax*-type and *T. congolense*-type infections. However, in *G. palpalis*, *G. tabaniformis* and *G. tachinoides* the rate of *T. vivax*-type infection decreased in older age categories. Overall prevalences of *T. vivax*-type infections were significantly higher in female than in male flies of four species: *G. pallidipes*, *G. palpalis*, *G. tabaniformis* and *G. tachinoides*. As a result of these analyses it was concluded that when sterile male tsetse are released for a SIT programme, feeding a blood meal before release with a trypanocide, would more effective to reduce the risk of trypanosome transmission by these flies, than providing a blood meal without a trypanocide, as this reduces the changes for infection of the flies from subsequent feeds on infected animals.

Livestock in Ethiopia

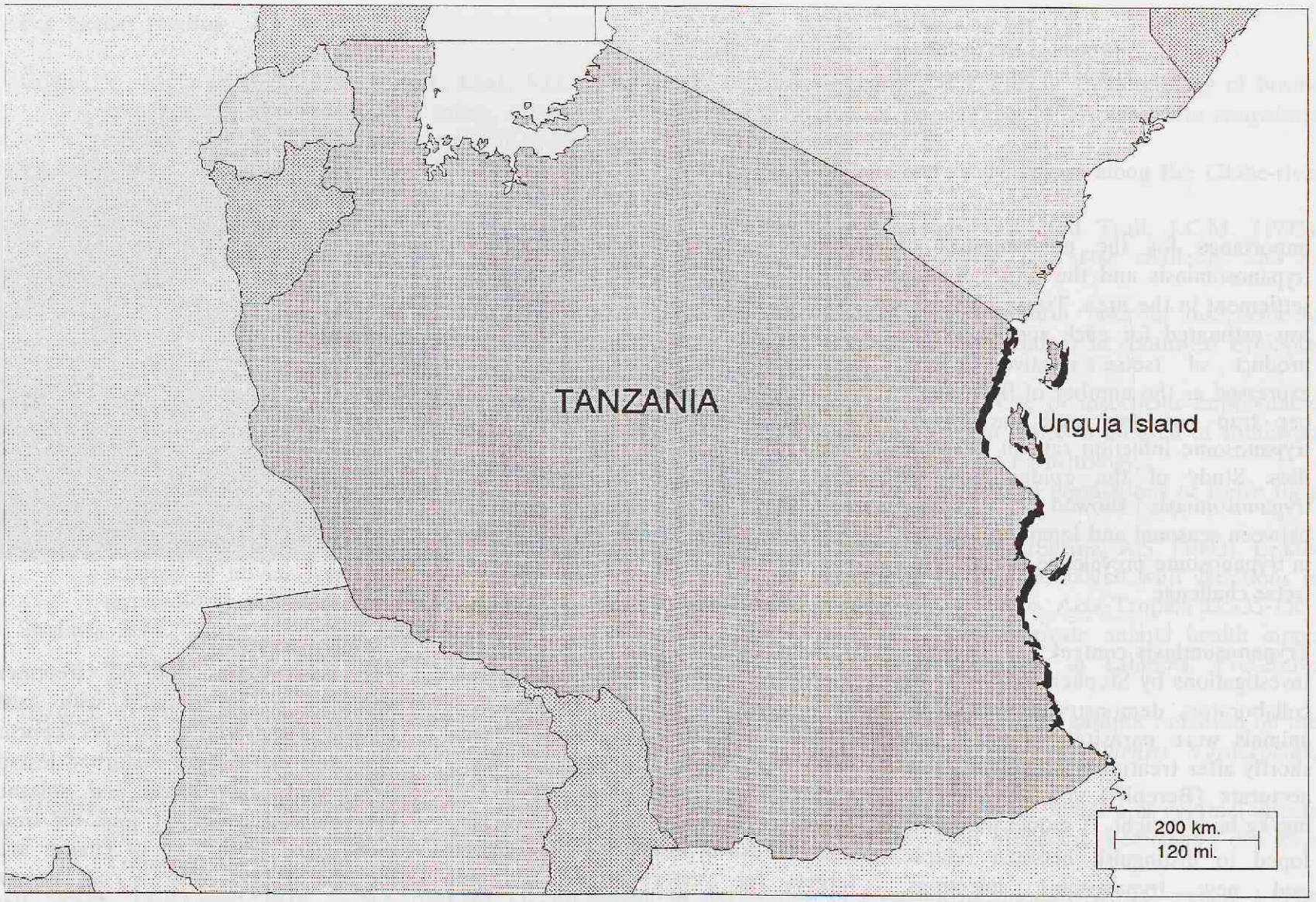
Ethiopia has approximately 27 million head of cattle, which is the largest cattle population in any African country. Eighty percent of the cattle is located in the highlands which are relatively free of diseases and where cattle play an important role in agriculture. The highlands are densely populated and livestock productivity is low due to overstocking. As a consequence there is a movement of people to lower-lying areas. East African Zebu cattle, which are susceptible to trypanosomiasis, are raised in these areas. One of the main constraints here, particularly in the southwest of the country, is tsetse-transmitted trypanosomiasis. The use of trypanocidal drugs appears to be widespread and resistance to available drugs is an increasing problem.

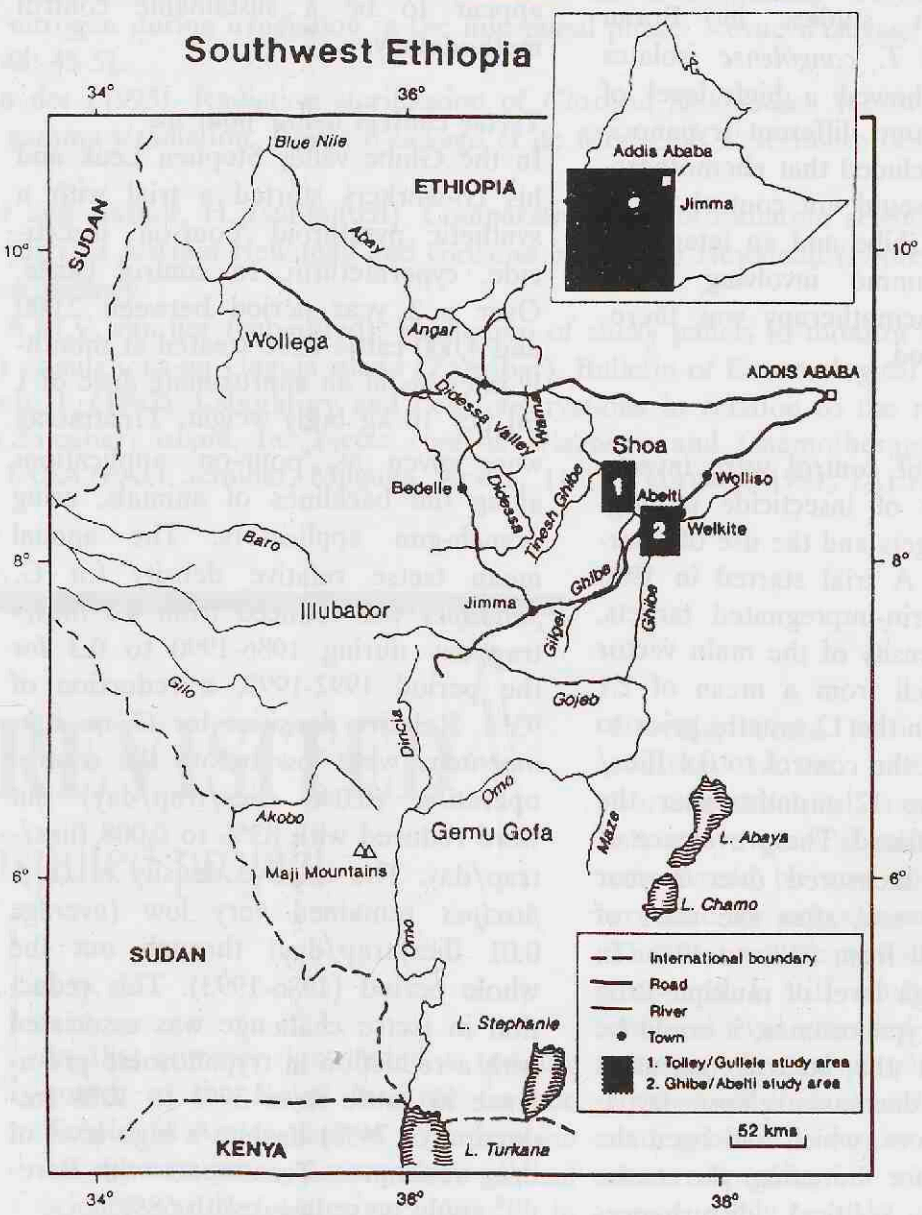
Ghibe valley

The studies presented by Stephen Leak were executed in the Ghibe valley in southwest Ethiopia. The Ghibe river flowing in its valley, later becomes the Omo river, flowing into Lake Turkana in Kenya. The altitude of the valley base ranged from 900 to 1100 m. and the valley is bounded by an escarpment of 1600 to 2000 m. *G. pallidipes* and *G. fusipes* were detected from 1986 to 1992. In 1989 *G. morsitans submorsitans* was detected for the first time; indicating the rapid advancement of the distribution of this species upstream into the Omo river basin. The latter species could well become of major

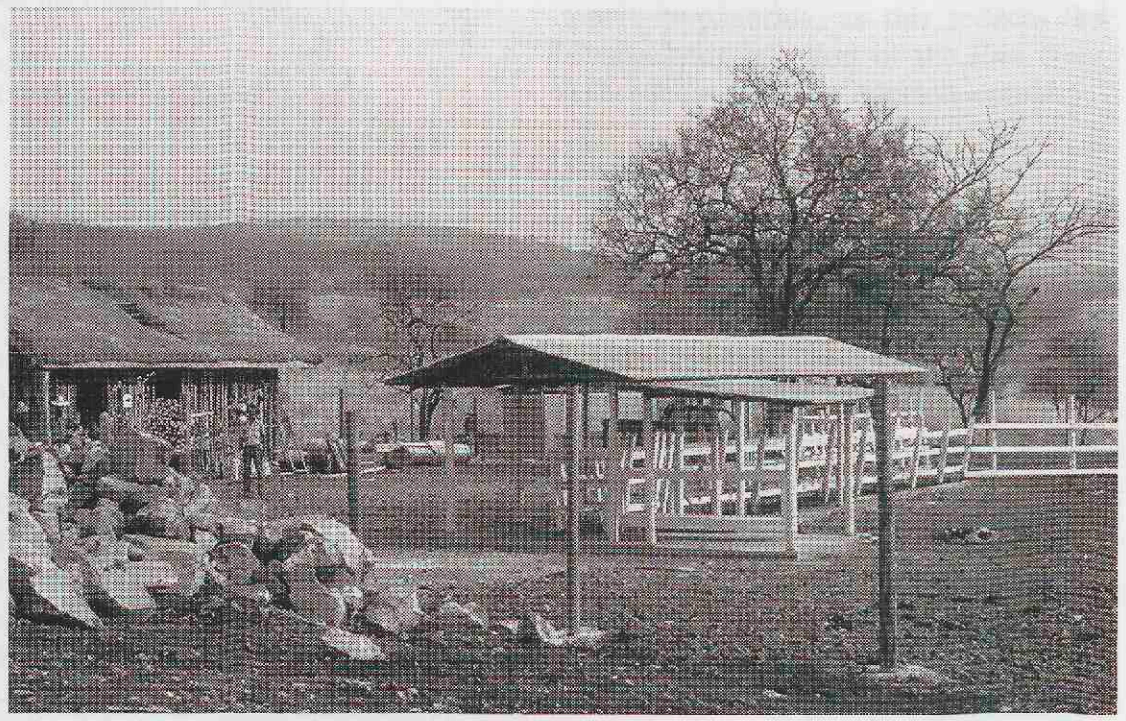


Mean monthly apparent density (flies/trap/day) of *Glossina pallidipes* (with standard errors), before and after tsetse control using the 'pour on' method in southwest Ethiopia (Leak *et al.*, 1995)





Map of the study area in southwest Ethiopia (Leak and Mulatu, 1993)



The ILCA cattle monitoring and treatment station on the escarpment of the Ghibe valley (Photo: Paling)

importance for the epidemiology of trypanosomiasis and the future human settlement in the area. Tsetse challenge was estimated for each species as the product of tsetse relative density, expressed as the number of flies caught per trap per day, and the mature trypanosome infection rate in dissected flies. Study of the epidemiology of trypanosomiasis showed relationships between seasonal and longterm changes in trypanosome prevalence in cattle and tsetse challenge.

Trypanosomiasis control

Investigations by Stephen Leak and his collaborators demonstrated that many animals were parasitaemic again very shortly after treatment with diminazene aceturate (Berenil^{R}) at a dose of 3.5 mg/kg body weight. A model was developed to distinguish between relapse and new trypanosome infections. Characterisation studies in Boran calves with 12 *T. congolense* isolates from Ghibe, showed a high level of resistance to three different trypanocides. It was concluded that chemotherapeutic agents would not control trypanosomiasis at Ghibe and an integrated control programme involving tsetse control and chemotherapy was therefore implemented.

Tsetse control

Two methods of control were investigated: the use of insecticide impregnated cloth targets and the use of pour-on insecticide. A trial started in 1990 using deltametrin-impregnated targets. The relative density of the main vector *G. pallidipes* fell from a mean of 2.1 flies/trap/day in the 12 months prior to introduction of the control to 0.4 flies/trap/day in the 12 months after the control was initiated. The prevalence of *T. congolense* measured over 2 year periods before and after the start of the control, fell from 32% to 13%. In spite of the high level of multiple-drug resistance of trypanosomes, it could be concluded that the control operation succeeded to decrease relapse trypanosome infections, which had been the main reason for initiating the tsetse control trial. Political disturbances occurred in Ethiopia in 1991 and the control operation was disrupted, mainly because of thefts of the targets. Pre-control levels of relative tsetse density and trypanosome prevalence were observed one year later and it was concluded by Leak and his co-workers that the use of insecticide-impregnated targets for vector control did not appear to be a sustainable control methodology.

Tsetse control using 'pour on'

In the Ghibe valley Stephen Leak and his co-workers started a trial with a synthetic pyrethroid 'pour-on' insecticide, cypermethrin, to control tsetse. Over a 3 year period between 2,000 and 4,000 cattle were treated at monthly intervals at an approximate dose of 1 ml per 10 kg body weight. Treatments were given as 'pour-on' applications along the backlines of animals, using drench-gun applicators. The annual mean tsetse relative density for *G. pallidipes* was reduced from 4.3 flies/-trap/day during 1986-1990 to 0.3 for the period 1992-1993, a reduction of 93%. Relative densities for *G. m. submorsitans* were low before the control operation (0.046 flies/trap/day) but were reduced with 83% to 0.008 flies/-trap/day. The relative density of *G. f. fuscipes* remained very low (average 0.01 flies/trap/day) through out the whole period (1986-1993). This reduction in tsetse challenge was associated with a reduction in trypanosome prevalence in cattle from 37% to 10% (reduction of 74%) despite a high level of drug resistance. Treatments with Berenil^{R} could be reduced with 68%.

Farmers acceptance

The cypermetrin 'pour-on' treatment appeared to be popular with cattle owners in the area as farmers reported that their cattle were disturbed less by tsetse and other biting and nuisance flies whilst grazing. All 'pour-on' treatment were given free of charge until the end of 1992, when a cost recovery scheme was introduced. From 1993 67% of the farmers continued to bring their animals for treatment indicating that they accepted the technique as an effective method for reducing trypanosomiasis, biting flies and ticks. Brent Swallow of ILRI studied the factors which influenced the participation of the farmers. Distinction should be made between private and public benefits. Important factors were proportion of cows and oxen, distance to the treatment and seasonal factors.

Leak concluded in his thesis that an integrated strategy using a combination of chemotherapy and application of 'pour-on' insecticides for tsetse control enables farmers to continue livestock production in traditional production systems. Furthermore, this control strategy appears acceptable to farmers and therefore is more likely to be sustainable.

R.W. Paling

For further reading

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COSTA RICA REVISITED

Some reflections on a disputed project

When United Airlines flight 1020 took off from Mexico International Airport heading for its final destination, the Costarican capital of San José, my mind wandered back to the summer of 1991.

In that summer I attended a training course at the Royal Institute for the Tropics in Amsterdam as a preparation for my new job as an expert in clinical sciences at the Veterinary School in Heredia, Costa Rica . The training consisted of two parts: one part on learning the local language, i.e. Spanish, and a general part for everybody who would be sent abroad in a programme for international cooperation. That last course was extremely interesting and I still consider it the best course I ever attended. It was given by very experienced people who were able to transmit their sparkling enthousiasm and genuine commitment to the students. Speaking in racing terms: the course easily beat the average academic

Practical training in surgery for the final year students (Photo: Van Weeren)

practical and theoretical courses I was accustomed to by several lengths. During the course several projects in different developing countries were presented, and a lot of problems, with which either the project management or individual team members were confronted, were discussed. It was surprising to see that projects could give rise to a variety of problems, ranging from rather futile to really serious and even life-threatening ones. One of the trainers, who had seen more of the world than all of his students together, put it in these words: *"You will all have a dip at some moment, most of you after about half a year. Then you will be lost and out of balance. The best thing you can do is take a leave of one or two weeks and retire to a lonely hill-side - in almost every developing country there are plenty - in order to find yourself again and to redefine your attitude towards the people and the project".*

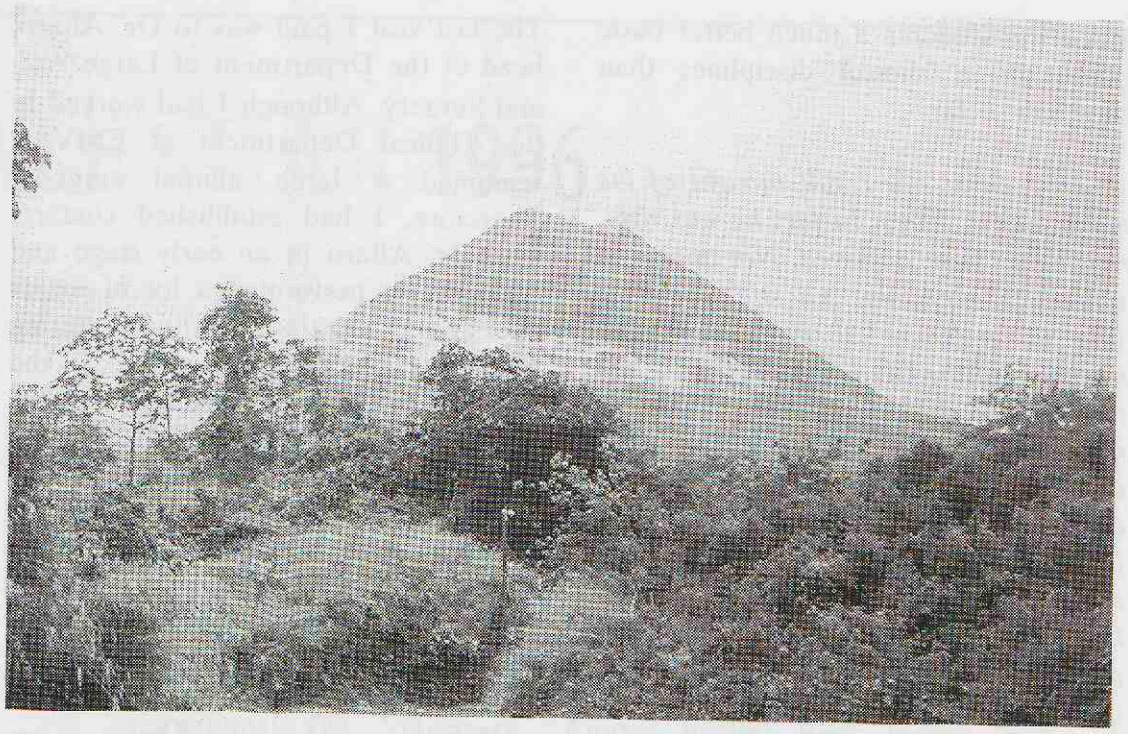
He was right of course, very right, and it is nothing but natural that the condition of working together in a small team, in a culturally different environment, contains all the seeds for a wide range of conflicts. However, at that moment I was still thinking that I would join a well-organized project team of a successful project that had conquered most of Costa Rica and was now making up its mind for the ensuing contest of the rest of Central and South America with already contacts from the Rio Grande down to the pampas of Argentina. Moreover, Costa Rica could hardly be seen as a real developing country, with living standards at about the same level as the southern European Union states such as Greece and Portugal. The cultural differences could never be very great.

Dinner consisted of delicious chopped meat with a small bottle of Californian red wine, so I forgot about the project and above all about the reason why I had started thinking of it. In fact, I had started thinking because I had promised my colleagues of the editorial board of EQUATOR to write something about the project I had been working in for two years and that was now nearing its end. The food was good and the wine even better. When I woke up from my after-dinner nap I was not surprised to hear the captain saying that we were already above Nicaraguan territory, at an altitude of 30,000 feet. I picked up the line of thought about the project again and recalled some facts.

The project started in 1985 as a cooperation between the Costarican *Escuela de Medicina Veterinaria* (EMV) and the Department of Herd Health and Ambulatory Clinic of the Utrecht Faculty of Veterinary Medicine and was supported by the Directorate General for Development Cooperation (DGIS) of the Netherlands Ministry of Foreign Affairs. Founding fathers of the project were Dr. Alfio Piva in Costa Rica and Professor Arie Brand as his Dutch counterpart. Main goal was the reinforcement of the clinical part of the curriculum at EMV with special emphasis on practical training. The level of the theroretical training at EMV was rather good, practical training, however, was virtually non-existent. The first three years of the project were dedicated to the improvement of the clinical training. Dr. Jan van Amerongen went to Costa Rica to help restructuring the clinical sector and improving the practical training. He succeeded in changing the curriculum, reshaping the final year into a year of rotating traineeships in large animal medicine, large animal surgery, reproduction, herd health and companion animal medicine and surgery, more or less like the system used in Utrecht. He also invested much energy in setting up an ambulatory clinic servicing mainly the dairy farmers on the slopes of the nearby Poás volcano. Jan van Amerongen did a great job and became a well-appreciated member of the local Faculty staff. Three years after his return to the Netherlands in 1988 he was still remembered by a great number of students, former students, staff and farmers as a good veterinarian and an excellent colleague or teacher.

Jan van Amerongen had already done some work on herd health and the adaptation of VAMPP (Veterinary Automated Management and Production control Programme) for use under Costarican conditions. However, it was

Fluid therapy under field conditions (Photo: Van Weeren)



The Arenal, one of the many active vulcanoes in Costa Rica (Photo: Van Weeren)

his successor, Dr. Mees Baayen, who gave this aspect of the project more attention. Baayen had been working in Mozambique in South East Africa for quite a long time, and had, unlike Van Amerongen, not a clinical but a more zootechnical background. He was a visionary man with a lot of very good or even brilliant ideas and he worked very hard. Despite his qualities he was not very inclined to consider other ideas than his own and he also demanded the same dedication as he had from his staffmembers. Dr. Baayen's background and attitude caused a 180 degrees turn in the direction of the project, away from the clinical part towards the adaptation and further development of the herd health computer programme, and also led to a violent clash with the senior members of the local Department of Clinical Sciences. Relations with the "Home Office" in Utrecht became disturbed too when one paper after another came in proposing an extension of the project in the field of software development, aiming at a wide variety of "modules" for the original programme, and even at the development of information systems for use in hospitals and libraries. "Information" was the key word and a wide web of information producing stations had to be put up, covering the whole of Spanish-speaking Latin America.

Despite all these problems and conflicting views, Dr. Baayen succeeded in expanding the project in an impressive way. The number of expatriates grew constantly and rapidly with a real outburst in 1991 when 4 experts arrived from the Netherlands: Dr. Jan Buurman, a software specialist, Dr. Ron Dwinger, first as the would be clinician but his position was rapidly changed into that of Senior Research Officer, and Drs Keverling Buisman and myself to revive the original clinical branch of the project. Shortly after the arrival of these newcomers the project was evaluated by an external comittee that clashed within hours with the team leader. Finally the committee advised negatively on the continuation of the project. The experts were paid by the Netherlands' Ministry of Foreign Affairs, therefore they did not need to worry for their salaries, but the funding of the project, pre-financed by Utrecht University, stopped rather abruptly and no money came through while the negotiations about the future of the project continued. Some months later Dr. Baayen was succeeded as team-leader by Dr. Enrique Pérez, his Costarican counterpart. Pérez had just returned to Cost Rica after a research visit to Davis, California.

The first year of our stay my colleagues and I had to work under these conditions, until everything got more or less settled, however, not without leaving deep scars on many of the members of the project.

When the captain finally anounced that we were nearing the international airport of Juan Santamaria and the "fasten seat belts" signs flashed on, I already cursed myself for the light-heartedness with which I had promised the EQUATOR editorial board to write an article about the project.

Costa Rica is a lovely country and I can recommend every lover of nature to visit it. Because the country is part of the small isthmus that unites the two large northern and southern parts of the American continent it has two coast lines, one at the Pacific side, the other facing the Caribbean. The climates on those coasts are completely different, the Caribbean being very wet, the Pacific side hot and dry. In between is the central plateau with the capital San José and the other main cities. There, the mean altitude is about 1,000 meters and the climate is of a pleasant, somewhat mediterranean type. My wife and I enjoyed our holiday very well with the visit to the Corcovado National Park on the southwestern Osa peninsula as the unrivalled highlight. The beauty of the vast untouched rain forest, with its rivers with crystal clear water, its lonely beeches, the enormous trees towering up 60 meters or more above your head, and the large groups of parrots flying amidst them, is unimaginable. This is the world as it once was meant to be. It was not without a little shock that I realized that there was more to be done than just enjoy this earthy paradise during the journey back to San José in an overcrowded bus that got a punctured tyre somewhere in the mountains. That is also Costa Rica.

Dr Pérez was friendly and busy as ever when I met him in his office. The answer to my question whether he thought the project had reached its goals came without any doubt: "Oh yes, I think so. Most if not all goals have been attained. We have now over 30 farms in the herd health system in the Tilarán area (an area with many double purpose herds near an artificial lake 130 km northwest of San José), and also some dairy farms in the nearby Poás region. VAMPP is by now a widely used programme in Costa Rica and, thanks to the courses we have provided for hundreds of people, also in other countries such as Panama, Nicaragua, Guatemala and Uruguay. In the clinical area progress has been moderate. This was partly due to resistance to innovations by some senior staff members who did not want to change their attitude. But even there some important teaching materials have been produced. These are still in use today and pro-

vided the students a much better basic education in clinical disciplines than they had so far."

When I drove off, I still thought of the words of Dr. Pérez. In fact he was right, much had been achieved. Not always in very close harmony, but still. What he said about some of the senior staff members of the Clinical Department had touched a heavily disputed topic. It made me think of that occasion when one of those senior staff members after a couple of beers during some party confessed his philosophy of life. His ultimate aim was not to achieve the absolute top in his profession, to write a lot of scientific articles or to see as many cases as possible. He worked to live, he explained, and was not living just to work. If he lived happily and well with his family, he was all right, even without a PhD degree or anything of the kind. It was a way to see life. Not a western one but at least one that was widely adhered to in Costa Rica. It was funny to see how people were shaped by cultural customs and habits. Another staff member of the same department had done his PhD research in Berlin and he returned with an almost Prussian mentality. The work had to be done punctually in a neatly and orderly fashion. This attitude is almost the opposite of the common Costarican approach, so it was not surprising that rows broke out on a quite regular basis between him and the rest of the staff. These were quite interesting from a sociological point of view, not in the least because in Berlin he had also learned how to get furious in the real German way.

The last visit I paid was to Dr. Alfaro, head of the Department of Large Animal Surgery. Although I had worked in the Clinical Department at EMV, I remained a large animal surgeon. Therefore, I had established contacts with Dr. Alfaro in an early stage and together we performed a lot of major operations, mostly in equine, during those years. I can still vividly recall the moment we were operating a horse with colic in the middle of the night. I was just holding about 10 meters of small intestine in my hands, when suddenly all the lights went out due to a power break-down. Some people got a few feeble torches from somewhere and somebody parked his car with the headlights on in front of the open door so that we could go on. However, we felt very relieved when the lights came back after about 20 minutes.

Dr. Alfaro received me in his nice house in the lovely village of Santa Ana. He had invited some more friends and we had a barbecue with excellent meat. One of the special dishes was "jiva" which is the flesh of the hump of the Zebu cattle. It needs several hours of preparation but after that it is really delicious.

"Well, René", he said when I asked his opinion on the project, handing me another can of Imperial, the leading lager of Costa Rica, "I think that many goals have been reached. Maybe not every goal, and, perhaps more important, maybe many goals not exactly in the way that was foreseen by the project management. But look, after your return to the Netherlands already two recently graduated vets from here have done a practical training at your Department of General and Large Animal Surgery. That was not a project goal, but it is, due to our good contacts established here in Costa Rica, an indirect consequence of the project".

I reflected that he was right. Somebody had done a training for half a year in surgery at our department and another person had stayed for two months to capacitate himself in large animal anaesthesia. And there were two more to come. One for surgery, another for neonatal care and pediatrics in the Department of Internal Medicine and Nutrition.

"And don't forget", he continued, "it is always difficult to evaluate a project like this as there are profound cultural differences between both parties. Therefore it is very well possible that the expectations of one side do not entirely match those from the other side".

He was right again and I remembered the remark that had been made during that preparation course in the summer of 1991 that it was not that easy to work together with a small number of people in a project team under different cultural conditions. I took another sip of my beer and enjoyed the warm breeze that struck me when I looked up into the tropical sky, full with twinkling stars.

René van Weeren

Punction of cerebrospinal fluid in a horse suspected of encephalitis (Photo: Van Weeren)

CALENDAR 1996

Veldhoven, The Netherlands
6 - 8 May, 1996
EuroResidue III, Conference on residues of veterinary drugs in food. Organized by: Federation of European Chemical Societies (FECS) and Netherlands Society for Nutrition and food Technology. Subjects: Antibiotics; hormones and beta-agonists; LC/MS/MS applications; residues in cultivated fish; toxic effects of veterinary drugs; biosensors; 'bound' residues. Registration fee: Dfl. 625,-. Location: Koningshof Congress Centre. Information and registration: Dr. N. Haagsma, Dep. of Food of Animal Origin, Faculty of Veterinary Medicine, P.O. Box 80.175, 3508 TD Utrecht (Tel.: +31-.30.2535365, telefax: +31.30.2-532365).

Barneveld, The Netherlands
24 June - 12 July, 1996
2nd Course on: Artificial insemination in pigs. Subjects: Collection of semen; Evaluation and processing of semen in the laboratory; Insemination and sow production control; Organization of an AI station and Selection of breeding stock. Fees including board and lodging: approx. Dfl. 7,000. Information: IPC Livestock Barneveld College, Dep. of International Studies and Cooperation Programmes, P.O. Box 64, 3770 AB Barneveld (Tel.: +31.342.-414881, telefax: +31.342.492813, e-mail: ipcbarvr@knoware.nl).

Atlanta, USA
29 June - 1 July, 1996
14th Symposium on 'The Internationalization of veterinary Education. Strengths, Challenges and Opportunities'. Organized by: College of Veterinary Medicine, The University of Georgia. Objectives: Internationalization of veterinary medical curricula; Compare and contrast curricula from the various world sectors; define areas of international veterinary medicine important to the veterinary profession; establish goals in a veterinary college relative to international offerings etc. Information: College of Veterinary Medicine, The University of Georgia, Athens, Georgia 30602-7372 (Tel.: +1.706.5425728).

Bologna, Italy
7 -10 July, 1996
14th International Pig Veterinary Society Congress. Information: New team, Via C. Ghiretti, I-43100 Parma (Tel.: +39.521.293913, telefax: 39.521.294036, e-mail: IPVS96@bovet.cineca.it).

Great Keppel Island, Australia
8 -11 July, 1996
4th International Conference on Fertility Control for Wildlife Management. Location: Great Keppel Island, Queensland. Information: Fertility Control Conference, c/-ACTS, GPO Box 2200, Canberra, ACT 2601 (Tel.: +61.6.2573299, telefax: +61.6.2573256, e-mail: ACTS@ozemail.com.au).

St. Albans, United Kingdom
8 July - 16 August, 1996
8th International training course on identification of helminth parasites of economic importance. Information: Dr. L.M. Gibbons, International Institute of Parasitology, 395 A Hatfield Road, St. Albans, Herts AL4 0XU (Tel.: +44.1727.833151, telefax: +44.1727.868721, e-mail CABI-IIP@cabi.org).

Jerusalem, Israel
4 -9 August, 1996
8th International Symposium of Veterinary Laboratory Diagnosticians and 3rd Joint OIE/WAVLD Session on biotechnology.Information: Secretariat, VIIIth International Symposium of Veterinary Laboratory Diagnosticians, P.O. Box 50006, Tel Aviv 61500 (Tel. +972.3.-5140014, telefax: +972.3.5175674).

Wageningen, the Netherlands
18 August - 22 November, 1996.
24th International course on dairy farming in rural development. Course programme: Introduction; Dairy development; Farming systems; Statistics; Economics and agricultural credit; Breeding; Pasture production; Nutrition and feeding: Animal health; Reproduction and AI, Extension and case studies. Course fee: Dfl. 5,000. Closing date: 1 May, 1996. Information and registration: International Agricultural Centre (IAC), P.O. Box 88, 6700 AB Wageningen (Tel.: +31.317.-490111, telefax: +31.317.418552, e-mail iac@iac.agro.nl).

Deventer, The Netherlands
19 August, 1996 - 6 June, 1997
International course on "Tropical Animal Production". Organized by: Larenstein International Agricultural College Deventer. Entry requirements: Diploma or degree in Animal Science and minimal 5 years relevant professional experience. Programme: Integrated approach to feed production, nutrition and reproduction of farm animals; management of farms and farm units; farm economics and extension approaches; farming systems analysis; rapid rural appraisal and an international excursion. Tuition fee: Dfl. 9,675; Board and lodging: Dfl. 17,000. Closing date: 1 April, 1996. Information: Registry Larenstein I.A.C., P.O. Box 7, 7400 DA Deventer (Tel.: +31.570.684654, telefax: +31.570.684608).

Barneveld, The Netherlands
26 August 1996 - 27 February, 1997
26th International course on poultry husbandry and 26th International course on pig husbandry. Organized by: IPC Livestock, Barneveld College. These courses will run at the same time. Following these courses participation is possible in the 19th Animal Feed Training programme (AFTP), which runs from 3 March

to 25 May, 1997. Direct entry in this last course is also possible. Fees including board and lodging: Poultry course: Dfl. 24,500; Pig course: Dfl. 24,500, Feed course; Dfl. 12,000 or 14,500 (direct entry). Closing date: 1 May, 1996. Information: IPC Livestock Barneveld College, Dep. of International Studies and Cooperation Programmes, P.O. Box 64, 3770 AB Barneveld (Tel.: +31.342.-414881, telefax: +31.342.492813, e-mail: ipcbarvr@knoware.nl).

Utrecht, The Netherlands
3 September, 1996 - 28 February 1998
International Master Course "Herd Health and Epidemiology". Organized by: Department of Herd Health and Reproduction of the Faculty of Veterinary Medicine. Programme: The Master Science course offers an introduction to the application of epidemiological methods specifically applied to the field of population oriented studies in animals. Course fee: Dfl. 15,000,- (not including lodging etc.). Closing date for registration 1 July, 1996. Information and registration: Office for International Cooperation, Faculty of Veterinary Medicine, P.O. Box 80.163, 3508 TD Utrecht (Tel.: +31-.30.2532116, telefax: +31.30.2531815, e-mail: bic@bic.dgk.ruu.nl).

Wageningen, The Netherlands
September 1996 - March, 1998
MSc Animal Science and MSc Aquaculture Programmes. These courses are designed to impart advanced knowledge, modern approaches in scientific research, analytical skills and critical attitudes, to enable graduates to develop animal production or aquaculture in their own countries. Information: Office for Foreign Students, Wageningen Agricultural University, P.O. Box 453, 6700 AL Wageningen.

Liverpool, United Kingdom
September, 1996 - August, 1997
Master of Science Course in Veterinary Parasitology. Organized by: Liverpool School of Tropical Medicine. The course is composed of 3 terms: (1) Formal tuition covering all major groups of parasites and their vectors, (2) Some of the most important veterinary parasites are selected and studies in depth (3) Personal research project. Information: The joint Masters Course Secretary, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool L3 5QA (Tel.: +44.151.-7089393, telefax: +44.151.7088733, e-mail: williadj@liverpool.ac.uk).

Changchun, PR China
12 -14 September, 1996
2nd International Seminar on non tsetse-transmitted animal trypanosomiasis (with the participation of the OIE). Information: M. le Docteur L. Touatier, 228, bd du Président Wilson, 33000 Bordeaux, France.

Utrecht, The Netherlands
27 September, 1996
7th International symposium: Tropical Animal Health and Production. Theme: 'Urbanization: Veterinary public health consequences'. Organized by the Committee for the Advancement of Tropical veterinary Science (CATS) and the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University. Registration before 1 September, 1996 to Office for International Cooperation, Faculty of Veterinary Medicine. P.O. Box 80.163, 3508 TD Utrecht (Telefax: +31.30.2531815, e-mail bic@bic.dgk.ruu.nl).

Vienna, Austria
21 October - 15 November, 1996.
International Training Course on the Use of Molecular Techniques (PCR, DNA Probes) for the Diagnosis and Monitoring of the Major Livestock Diseases. Organized by: International Atomic Energy Agency with the support of the FAO/IAEA Joint Division of Nuclear Techniques in Food and Agriculture. Programme: (1) Introduction of concepts of the use of PCR and DNA probes in animal disease diagnosis and monitoring, (2) Provide practical training in these techniques, (3) Provide training in the set up of a diagnostic PCR laboratory. Location: Siebersdorf near Vienna. Application: On standard IAEA form 'Nomination for training course', through the official channels (Ministry of Foreign Affairs or UNDP Office) to: IAEA, P.O. Box 100, A-1400 Vienna (Telefax: +43.1.20607). Closing date: 19 August, 1996. IAEA scholarships are available for participants from developing countries IAEA.

Nagasaki, Japan
17 - 22 November, 1996
14th International Congress for Tropical Medicine and Malaria. 'New goals for the 21th century'. Organized by: Science council of Japan, Japanese Society of tropical Medicine and International federation for Tropical Medicine. Information, registration and submission of papers: Dr. Hideyo Itakura, Secretary General 14th ICTM Secretariat, c/o The Institute of Tropical Medicine, Nagasaki University, 1-1 2-4, Sakamoto, Nagasaki, 852 Japan.

EQUATOR

VOLUME 8, NO.3

NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

ISSN 0923-3334

EQUATOR is a periodical of the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University.

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Printed by
Elinkwijk b.v.

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P.O. Box 80.163
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EQUATOR is published bi-monthly.

Subscription is free of charge. For changes in address and termination of subscription please return the corrected label to the editorial office.

May/June, 1996

from the editor

This year the Faculty of Veterinary Medicine celebrates 175 years of Veterinary Education in The Netherlands (175 VET). A good occasion to look back, reflecting on what has been achieved, and to look forward to the challenges of the future. When looking back in the field of tropical veterinary medicine there are some names of people who have had a long career in the tropics. It seemed a good idea to the editorial staff EQUATOR to interview some of these pioneers in this special year when Utrecht's Faculty of Veterinary Medicine is celebrating its jubilee.

There was no doubt who would be the first to be interviewed, being without rivalry the Nestor of the veterinarians, Prof. Dr. P. Hoekstra, who has a long and distinguished career in the tropics. Professor Hoekstra graduated from Utrecht University in 1935 and went to the former Dutch East Indies one year later. He finally was to become the first veterinarian to get his PhD-degree at the newly established Veterinary Faculty at Buitenzorg (now Bogor) on Java in 1948 and became professor in animal husbandry at the same university. In between lay some very eventful years. Professor Hoekstra was very willing to tell about his experiences in the tropics in those early days and he turned out to be a very good narrator with an exceptional memory who left a deep impression on the editors.

As part of the celebrations of 175 years of Veterinary Education in The Netherlands (175 VET) many congresses and symposia are organized, including the 7th symposium on 'Tropical Animal Health and Production' on 26 September, 1996.

The organizing committee has selected as this years' theme: 'Urbanisation: veterinary public health consequences'. Proper health care and disease prevention are creating tremendous challenges for the medical authorities of the growing urban population in many tropical areas. Provision of clean drinking water and the production of healthy and inexpensive foodstuffs are essential elements of the urban services. Foodstuffs of animal origin like meat, milk and eggs are essential in the diet and are increasingly produced in the peri- and intar-urban areas. Production animals are being kept in small gardens or even inside the houses. Livestock and dogs are roaming along the city streets. Government veterinary services for these animals are often non-existing as livestock production in cities may officially not be permitted. However, the presence of animals in the cities creates risks which are of major concern to the (veterinary) public health authorities. These risks are a result of e.g. manure disposal, illegal slaughter and disposal of offal, sale of meat and by-products under uncontrolled conditions and zoonoses as a result of crowding and close contacts between man and his animals. During the symposium attention will be paid to the needs and possibilities for the introduction of concepts for improving the veterinary public health conditions in urban centres in tropical areas.

NEVER PLAYING BRIDGE AGAIN.....

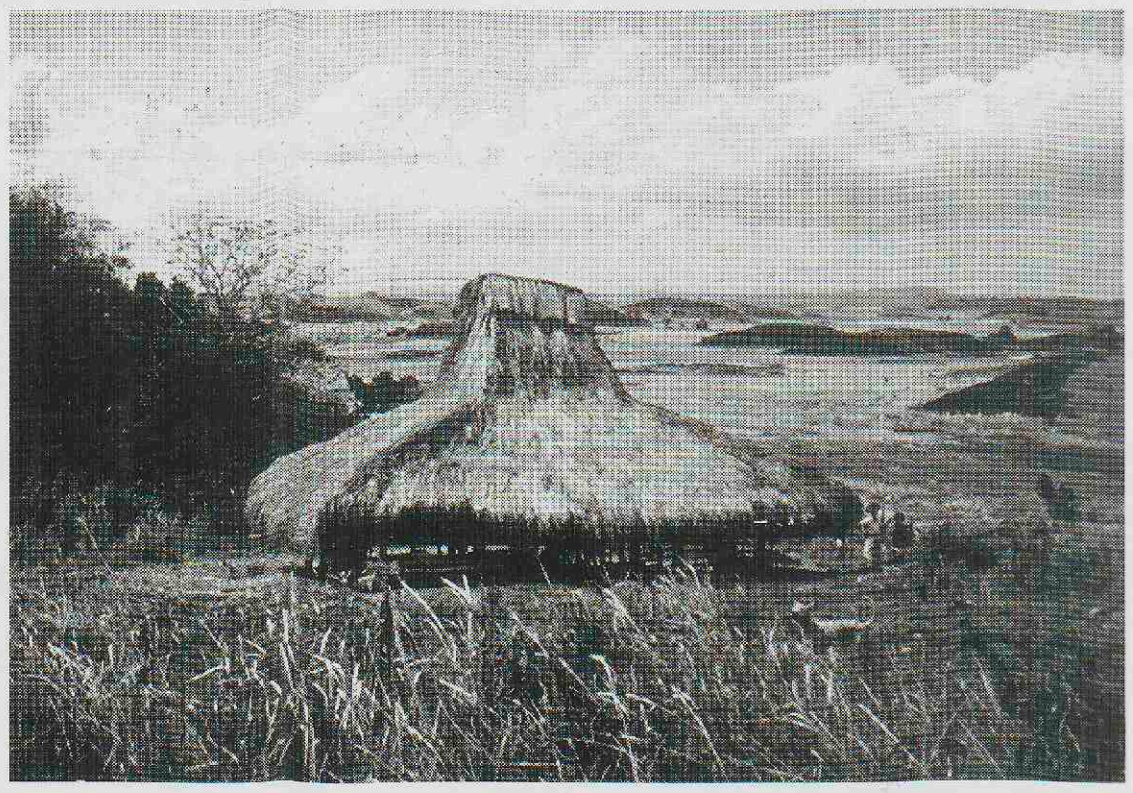
Prof. Dr. P. Hoekstra graduated from Utrecht University in 1935 and went to the former Dutch East Indies one year later. He finally was to become the first veterinarian to get his PhD-degree at the newly established Veterinary Faculty at Buitenzorg (now Bogor) on Java in 1948 and became professor in animal husbandry at the same university. In between lay some very eventful years which he described lively for the editors of EQUATOR.

From farmer to veterinarian

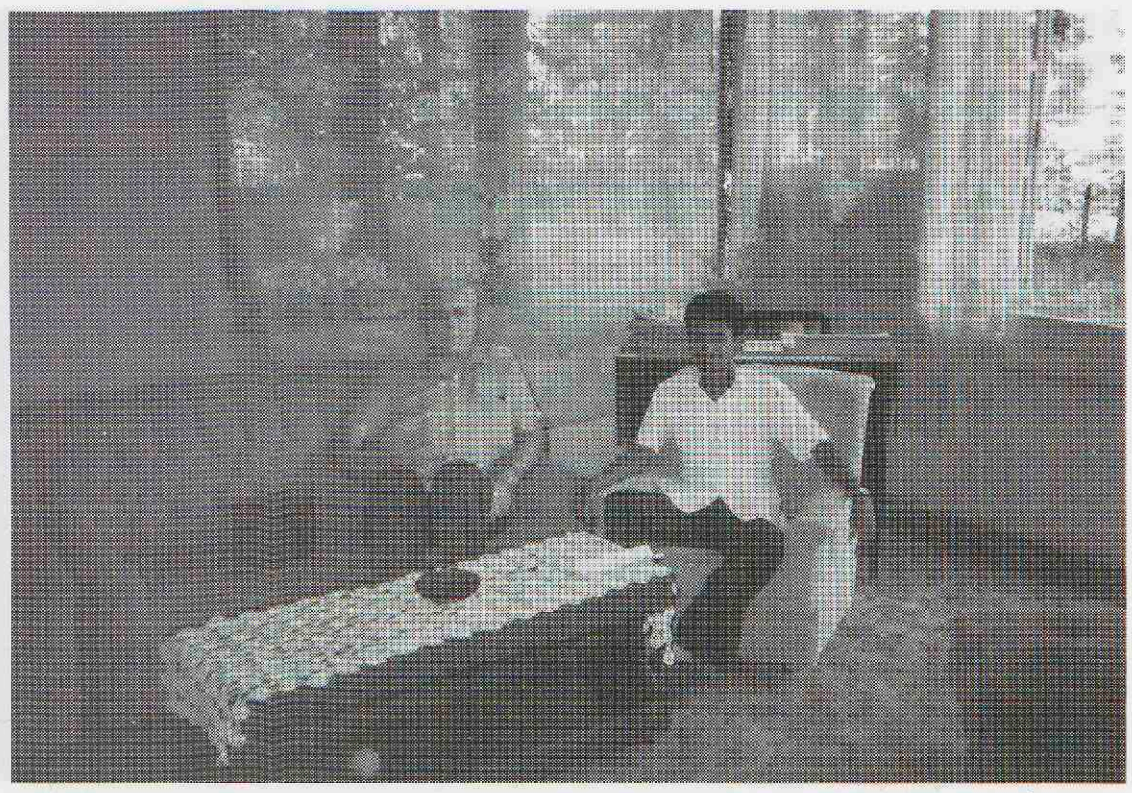
"I always wanted to be a farmer, and after high school, I went to an agricultural college. I actually did become a farmer at the end of the twenties in the North of the country, the province of Friesland, and I liked the job. Nevertheless, some kind of intellectual challenge was missing. I think I was the only farmer in the region who had books sent in on a regular basis from the capital of the province. One day, I still remember I was milking a cow named Grada, I said to myself: "I am going". And I went. I went to Utrecht to study veterinary medicine. In fact, I would have preferred to study animal husbandry at the Agricultural High School in Wageningen, but those were the days after the big crash in Wall Street and there were really no jobs in that field. So, it became Utrecht. I graduated in 1935 and had some short-time jobs afterwards. I even almost started an investigation for a PhD thesis on the development of a new vaccine against swine erysipelas. However, then my eye fell on an advertisement in which two veterinarians were sought for the then Dutch East Indies. Although I never had visited the colony, I knew something about it as my brother was working there as a medical doctor and I also had two good friends who had studied indology. I wrote, and was invited for an interview with a retired head of the Veterinary Service. I had to meet him in the first class waiting-room of the Arnhem railway station and his first question was: "How is your Dutch?" Later I understood why this was the main item. The most important thing a colonial veterinary officer was required to do was to write reports, lots and lots of reports! Anyhow, my Dutch was sufficient and I got the job."

The very start

"In August 1936 I embarked for the East. When we arrived at the island of Sabang, where all steamers docked to bunker and where all would-be civil servants got a telegram saying where they would be located. I got a message that my first place would be the city of Bandung. When some time later we arrived at Tandjong Priok, the port of the capital Batavia, I learnt why I had been chosen to go there. There was some trouble with the cheese production in the local dairy plant. "You have attended an agricultural college, so you are the right man to solve those problems", I was told by the head of the Veterinary Service, Dr. Kok. In fact, the problem was not so easy to solve and I wrote my first report advising that a dairy expert should be sent in. Later, I heard that they had done so and that the problem indeed had been solved. By that time I had been allocated to another post, in the Batak-lands of the large and relatively uncivilized island of Sumatra. There an outbreak had been reported of an unknown disease that had been called Toba disease after nearby lake Toba. They were very careful about it because there were some fears that it would be rinderpest. If this really was the case, it would be disastrous for the relatively important export of livestock to Singapore, so we had to manoeuvre with care. Later, these appeared to be only rumours and in fact there has never been rinderpest in Indonesia. A disease that did present a problem in that region was anthrax. I arrived on the 31st December 1936 and I wanted to start vaccinating rapidly. So the next day, New Year's day 1937, I wanted to report to the local veterinarian. I did find him, together with the police inspector and the senior civil servant. All had been celebrating New Year's day and all were terribly drunk. Fortunately, everybody was sober again the next day and we could start vaccinating. When I was vaccinating it struck me that the outbreak mostly affected the buffaloes and not the cattle or the horses. So, I wrote a report to the head of the Veterinary Service that the way of keeping



Typical house on the island of Sumba (Photo: Hoekstra)



Professor Hoekstra with his successor in his old house on the island of Sumba (Photo: collection Hoekstra)

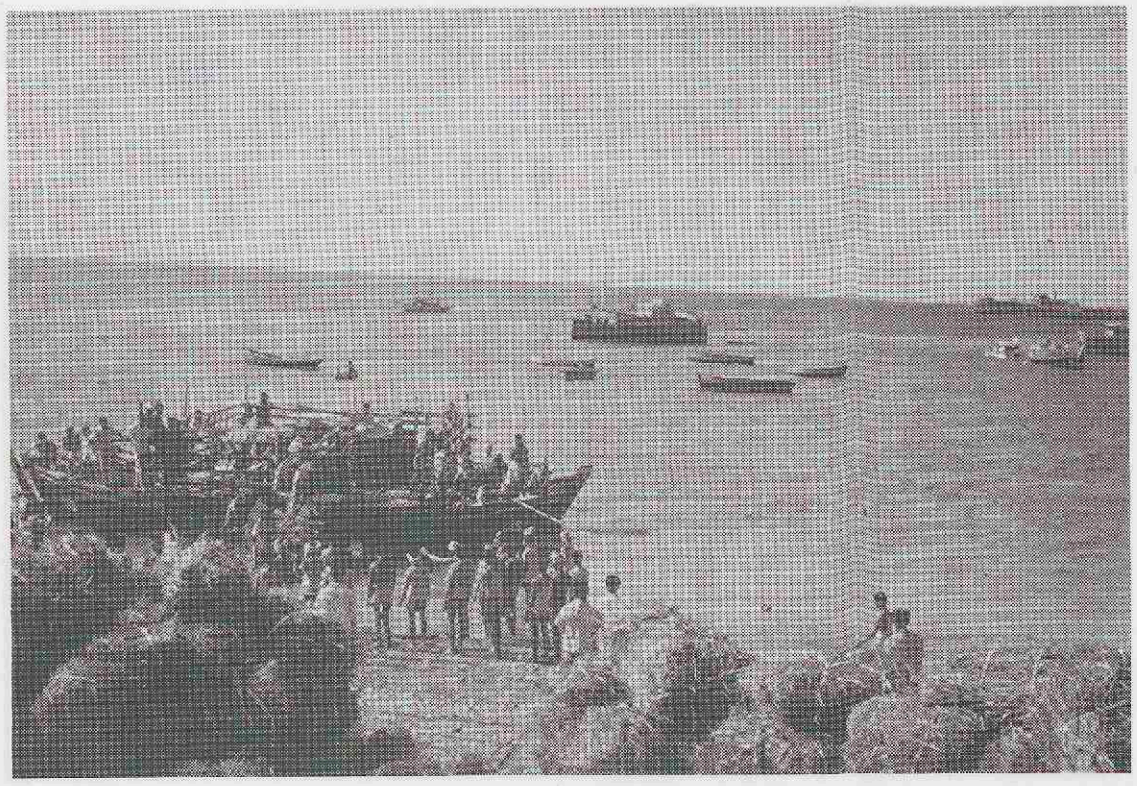
the animals might influence the spread of the disease. The message I got back was that I could better leave all theory for what it was and keep to the practical job. Other important diseases we had in that region were haemorrhagic septicaemia and Surra in equine.
As I already said to you, my main interest was the aspect of breeding, more than the strict veterinary or clinical parts of the job. That was why I started, for the second time now, a PhD study on pig-breeding on the island of Nias. I had hardly started collecting data when I got the instructions to go to what was then British India, to buy 150 Jumnapary goats. These would be used to improve the local stock"

Buying goats in India

"When my colleague and I arrived in Calcutta, the very first thing that struck us was the complete lack of hygiene in the large slaughter houses over there. It was one of our duties as a veterinarian in the Dutch East Indies to look after the hygiene in all places with slaughter houses and I must say, the rules were adhered to rather strictly. My chief at home in Medan on the island of Sumatra, who was an Indonesian, was very strict with respect to the aspect of hygiene in the local slaughter house. The chains with which the carcasses were hoisted to the rail at the ceiling had to look as if they were made of recently polished silver. In India there appeared to be no rules at all!
We took a train to Etawah in the Central Provinces and from there had to walk for a day and a half into the bush to get to the place where the goats were. We stayed about 1½ months selecting the goats and finally bought 152 of them. They all had to walk back with us to the railway station for two days and to our big surprise all 152 goats arrived. However, by then we had a problem as there were only 75 goats allowed in a railway carriage. As good Dutchies we did not like to rent three carriages, but neither did we like the idea to leave two of the goats at the station. So, we gave the local officer a few silver rupees and off we went with 152 goats in two carriages and documents stating that we took 150 goats with us. Everything went well until we arrived in Calcutta. There the carriages were inspected again. This time not by one of the Indian staff members, but by a British colonial officer and apparently one who had freshly come in from the UK. He counted the animals, looked at the papers, counted again and then raised his eyebrows. As we already had a lot of experience in India and knew that everything was possible with some rupees, I, almost without thinking, offered the man some rupees. He looked at them, then looked at me and exploded. Well, to make things short, he nearly jailed us and we were very lucky to get away only paying a fine that was several times the amount of money it would have cost to rent another carriage. Those two goats were expensive ones!"

Sumba

"In March or April 1937 I was sent to the island of Sumba. So, farewell Nias, farewell PhD-thesis! Sumba is a rather small island, about as large as the four northern provinces of The Netherlands. There we lived with four expatriates on a row: the chief Civil Servant, the lieutenant, the medical doctor and the veterinarian. We played a lot of tennis together and almost every night I had to play bridge...
As for the work, this consisted mainly of keeping an eye on the large breeding programme of Zebu cattle on the island. Zebu cattle had been used for quite a long time to improve the local breeds in the archipelago. Initially every year bulls had been imported from India, but this was rather costly. Therefore, a large breeding programme was started on the island of Sumba as conditions were favourable there. Hundreds of breeding stock were shipped to Sumba where originally cattle was not indigenous, in contrast to buffaloes and horses. A system was set up by which cattle-breeders on the island received 12 cows and one bull for breeding. The condition was that they had to return the same number of animals, all other breeding products could be sold. This was the so-called "Sumba-contract". Things went rather well and we were able to send 300 to 400 young bulls to the main island of Java every fortnight.
A funny thing was that, as traditional stock-breeding always had focused on horses and buffaloes, cattle had no social status for the people of Sumba, despite its economical value. I got interested in the ways of breeding on the island and wanted to read a bit more. However, I got frustrated as I had to play bridge almost every night and thus no time to do so. So the day came, after a countless number of bridge drives, that I said: "I'll never play bridge again!" A promise to which I have kept ever since. I cannot say that the decision was appreciated by my bridge partners, but they respected it and so I finally got some time. I started to publish about various aspects of horse-, cattle- and buffalo-breeding on the island and I also published a rather exhaustive article about *"extensive cattle farming as a rational agricultural system"*. In this article I took position against the agricultural experts who were promoting ways of mixed farming, against the experts in forestry who did



Loading cattle on the Sumba shore for transport to Java (Photo: Hoekstra)

not like the burning techniques used by the cattle farmers and against the Civil Service and missionaries who wanted everybody to live in easily accessible villages rather than in the open field. I also started my investigations on the new subject for my thesis: Horse breeding on the island of Sumba. In March 1942 I was well under way with my investigations. In that month the Japanese, who had spread through the Pacific at an enormous speed after the attack on Pearl Harbor in December 1941, reached the Indonesian archipelago."

The Japanese occupation

"When the Japanese arrived, all white men were immediately jailed, a few days later followed by the women and children. When they were drunk, they amused themselves by beating us up a bit or they literally started to throw us around. Civil servants were among the favourites for these little games and I also remember a Roman Catholic priest with an enormous belly who was always reading his prayers. He too was always one of the victims. A few months later we were sent to Makassar on the island of Celebes. There, the women were deported to another camp. I still remember that they gave us exactly one hour to say farewell. That is not so much time to say goodbye to a beloved person you might never see again... However, I must say not all Japanese were bad or behaving like beasts. My wife was pregnant at that moment and of course I was very worried as the women had to travel for a large distance in military trucks. When I spoke to one of their officers expressing my concern he told me not to worry, nothing would happen he said. And, indeed, when they drove off my wife was offered the front seat in one of the cars of the officers who themselves sat in the back.

Life in the camps was harsh but not unbearable. Food was little, we were beaten from time to time and we had to bend almost every second, but most of us survived. However, things changed when the Yanks started to bomb our camp. We had to go deeper and deeper into the bush. Now conditions rapidly became worse and, due to lack of boiled water, dysentery broke out. I was not able to keep to my feet during the last three months of the war, just for malnutrition and severe exhaustion. Then the bombs fell on Hiroshima and Nagasaki and the war was over. A fortnight later we were transported back to Makassar where we were welcomed by the local people in a very friendly way. This friendly atmosphere changed slowly into a more grim one when, after the proclamation of the republic, the conflict over the independence grew and finally completely got out of hand. For me personally it was a strange experience to see my son for the first time at an age of three."

Back to Sumba

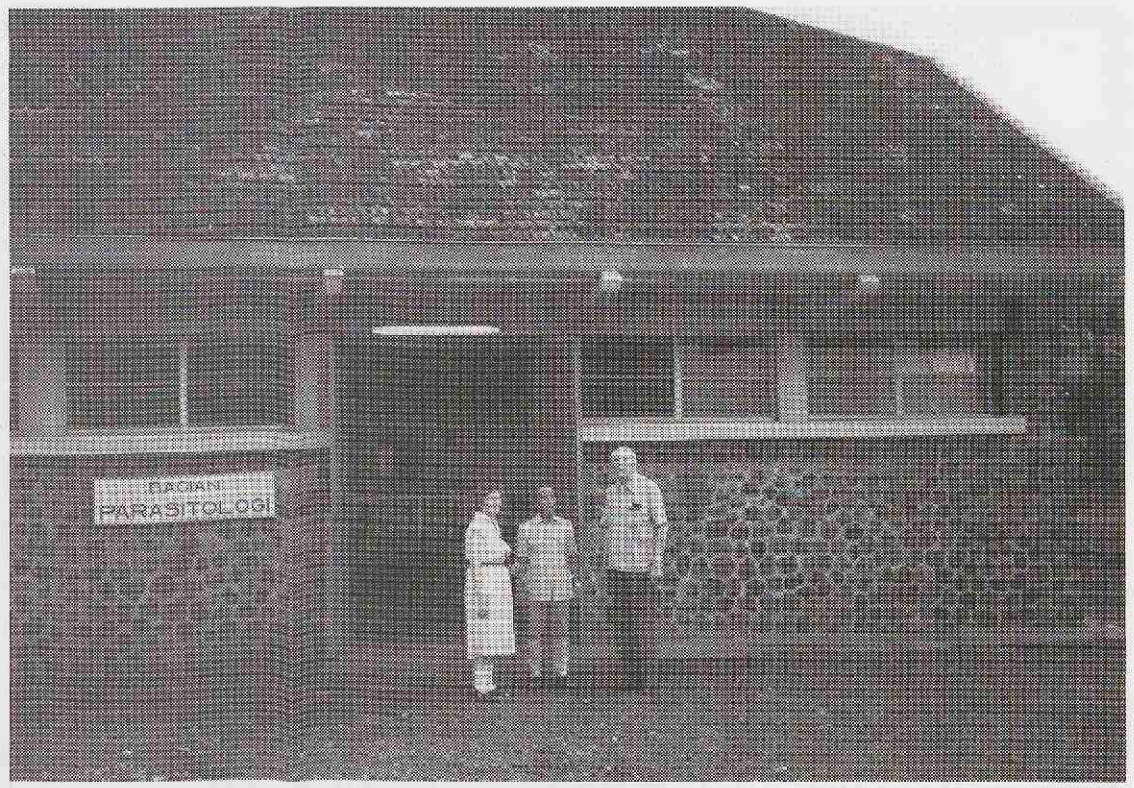
"In December 1945 I arrived again on my beloved island of Sumba. All the notes for my thesis had gone and thus I saw my third attempt to write a PhD thesis frustrated. On the island there was a severe outbreak of anthrax and most of the breeding stock had gone wild. In March and April 1946 our wives arrived and they brought with them the vaccine for the control of the outbreak. It was an enormous task to recapture the animals and to stop the anthrax epidemic. Finally, we succeeded and in the end of 1946 I was bestowed with the honour of the order of knighthood of Orange Nassau in recognition of the job we had done.

I started to collect my data again, on the same subject, and I finally wrote my thesis during my leave in Holland. When I went back to the East in 1948 I was the first student to defend a PhD thesis at the then newly opened Veterinary Faculty of Buitenzorg or Bogor. In fact, before the war there had been an educational centre for the so-called local veterinarians who got a four year course in veterinary medicine and animal husbandry. After the war it was recognized that higher education had been largely neglected and many institutions of superior education were opened in a relatively short time, among them the Veterinary Faculty of Buitenzorg, about 25 miles from Batavia.

Only a short while after the defence of my thesis, back on the island of Sumba, I got a letter asking whether I would agree to become a professor of animal husbandry at the new faculty. I agreed and held the post from 1948 to 1951. Of course that was not so easy a task as I had to teach a lot of disciplines, some of which I hardly had any experience in. I had to study a lot and to work very hard, but somehow I managed. After the official transmission of power in 1949 the Dutch staff was allowed to stay in their posts, but gradually it became clear that there was no future for us. When I was asked to become the founding director of an Institute of Animal Husbandry that would be part of the National Institute for Applied Technical and Physical Research (TNO) in Holland, I accepted and repatriated."

Further career and international missions

"In 1957 I joined the Utrecht Faculty of Veterinary Medicine as a professor of Animal Husbandry and in 1962 I also took a chair in Tropical Animal Hus-



In front of the old zootechnical institute (1948), now the institute of parasitology, at the Veterinary Faculty in Bogor (Photo: collection Hoekstra)

bandry at the Agricultural University in Wageningen.

Although I did not stay for long periods in the tropics any more, I still travelled a lot in the third world. Partly for my job as a professor, partly for the Dutch Directorate for International Cooperation. I have travelled rather extensively in the Caribbean and parts of Central and South America, visiting Jamaica, Trinidad, Surinam, Colombia, Ecuador and Costa Rica. In Africa I travelled to Kenya, Tanzania and Egypt and I also visited some former French colonies (Chad, Cameroon and the Central African Republic) for the European Community to evaluate a project that aimed at the foundation of a veterinary school in the Central African capital of Bangui. For the Agricultural High School I made a trip to West Africa visiting Nigeria, Ghana, Ivory Coast and Senegal. For the Directorate for International Cooperation I advised on the set-up of an experimental farm for the veterinary faculty in Isfahan, Iran. I also visited New Guinea, then still Dutch, where I met Dick Zwart who later became the successor of Dr. Wilson as professor of Tropical Veterinary Medicine in Utrecht. When he was asked for the job, he was working in Ghana and I was one of the people who had proposed his name. He later told me that he was as surprised as I was on Sumba many years ago, when he got a similar letter in Ghana...."

We had been listening breathlessly to the story of professor Hoekstra's long and rich career. A career that has been built upon a tremendous energy and willpower. Who else will start again with his PhD thesis when, after two failed attempts, the manuscript of the nearly successful third attempt has been destroyed? Although his career has known its dark periods, with the period of the Japanese occupation as the most outspoken example, he has been capable to retain his cheerfulness to the present day. He was also able to speak about those long gone colonial days without bitterness or melancholy. I (RvW) still remember the day when he gave a talk to the students of the optional course in Tropical Veterinary Medicine in 1981. Then he told us that, when he went back to Indonesia for the first time in 1966, he saw that things had changed. Indeed, the trains did not run on time any more what they had done in the colonial era and there was more chaos. "But", he added, "I noticed that the people were different. They felt free now, something they had not felt before". This was a very characteristic remark for one of our remarkable personalities in tropical veterinary medicine and animal husbandry.

René van Weeren and Jean de Gooijer

FOR YOUR INFORMATION 1

ICTTD Newsletter

The first issue of another newsletter on livestock diseases in the tropics has been published recently. The 'Newsletter on ticks and tick-borne diseases of livestock in the tropics' was published in April, 1996. The publication is an activity in the frame of a Concerted Action financed by the INCO-DC programme of Directorate General XII of the European Union entitled: 'Integrated control of ticks and tick-borne diseases' (ICTTD). The newsletter is published by the Faculty of Veterinary Medicine of Utrecht University and the editor is Prof. Dr. G. Uilenberg. This first issue provides information about the objectives of the Concerted Action and the 24 participating institutes, which are located in Africa, Europe and the Caribbean. The ICTTD Newsletter intends to pay attention in the next issues to unpublished research results, description of activities of institutes, abstracts, preprints, reviews, literature references with abstracts and comments, meeting and conference announcements, etc. The Concerted Action project has opened the possibility for researchers on tropical tick-borne diseases of livestock to become Associate Member. You can obtain a registration form from Ms. J. Verbeek, Faculty of Veterinary Medicine, Department of Infectious Diseases and Immunology, P.O. Box 80.165, 3508 TD Utrecht, The Netherlands (tel.: +31-.30.2534591; telefax: +31.30.2540784; e-mail: j.verbeek@vetmic.dgk.ruu.nl).
The ICTTD Newsletter is available at: http://www.ruu.nl/tropical.ticks/

VETERINARY TRAINEESHIPS IN THE TROPICS

A practical period in Tanga, Tanzania

During the last part of their education at the Faculty of Veterinary Medicine of Utrecht University, the Netherlands, veterinary students with an interest in the tropics can choose to do a student traineeship as part of their veterinary education in a tropical country, usually as a follow-up of the tropical course. After finishing their veterinary education, the special course on tropical animal health and husbandry and the practical training in a tropical country, these young veterinarians are well prepared to start a professional career in the livestock sector in any part of the world. Willieanne van der Heijden and Jorunn Hulsebosch are two of these students. They have just completed their traineeship at the Tanga Smallholder Dairy Development Programme in Tanzania where they studied the possible causes of infertility in breeding bulls.

The preparations

Since the end of 1994 we, two Dutch veterinary students, were searching for a traineeship abroad. In February, 1995, the Office for International Cooperation of the Faculty of veterinary Medicine told us, that there was a possibility to go to Tanzania. The Tanga Smallholder Dairy Development Programme (a Dutch Development programme) was looking for two students to carry out a survey for venereal diseases in the breeding bulls, since the project had identified extended calving intervals in the dairy cows. One of the causative factors could be a venereal disease.

We were glad to get this opportunity. Immediately we started our search to find a supervisor. Drs. K.A.S. van Keulen (a veterinarian at the Department of Herd Health and Reproduction of the Faculty of Veterinary Medicine in Utrecht) and Dr. E. Hartman (Head of the Bacteriological section of the Laboratories for Animal Health Services in Deventer) were willing to help us with the preparations.

get as much as possible experience in bacteriological lab work. Moreover, we gained experience in handling bulls and we collected the necessary equipment.

For five months we collected literature on the two main venereal diseases in cattle: *Campylobacter fetus* subsp. *venerealis* and *Tritrichomonas foetus*. We wrote a research proposal and tried to

The first impressions

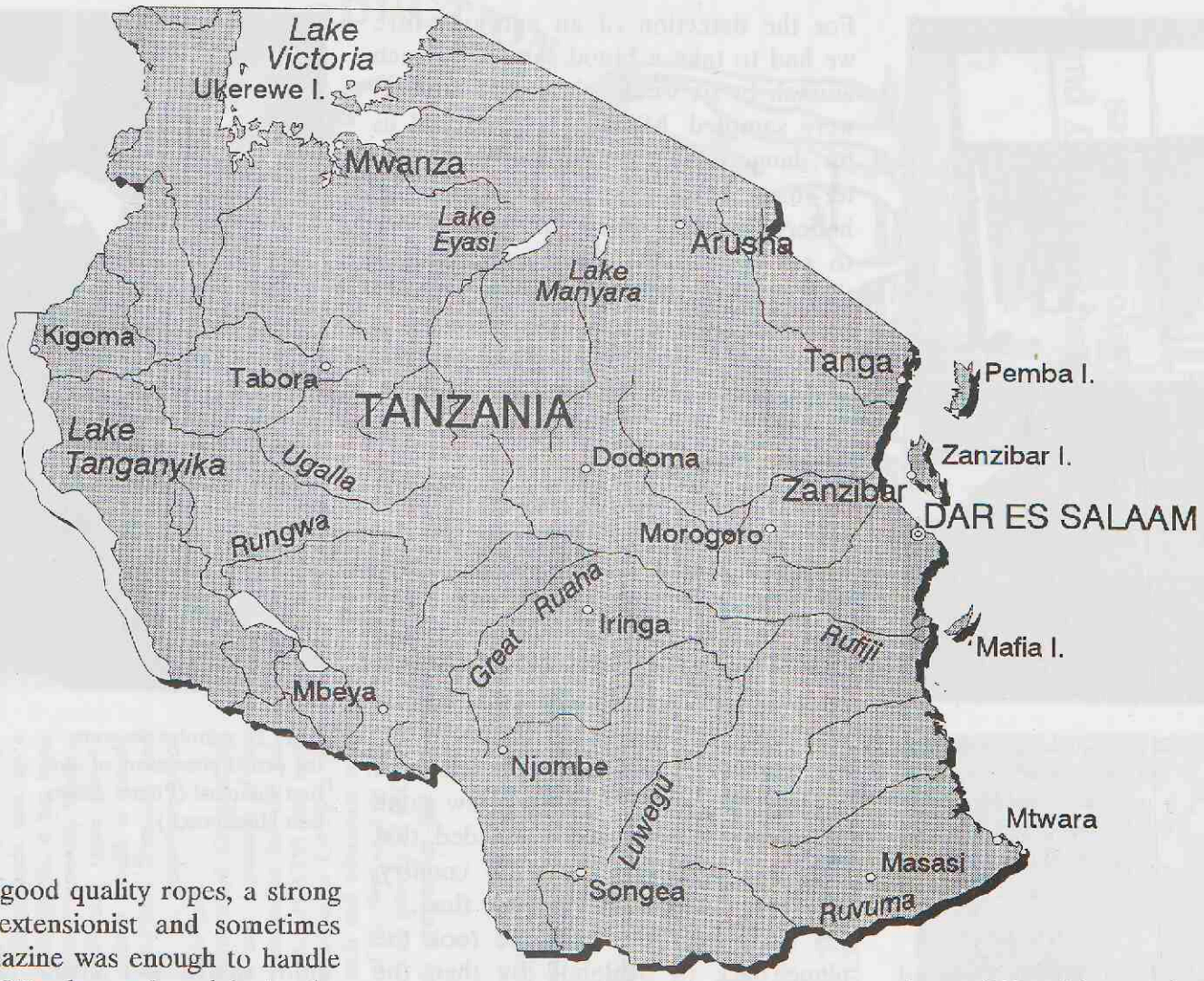
On September 8th, 1995, we arrived at Dar es Salaam airport. Our first steps on African soil! The first weeks the two Dutch veterinarians of the project (Drs. Birgit van Munster and Drs. Luuk Schoonman) were not around, but Dr. Swai (a Tanzanian veterinarian) as well as all the other people of the project took very well care of us. For two weeks we were busy preparing our laboratory and following an "introduction programme", especially organized for us. We visited a few districts of the project in Tanga Region and obtained a good impression of the zero-grazing livestock farms. We tasted all kind of exotic fruits and got a quick course in some basic Swahili.

The project

After two weeks we decided to start sampling the first bulls. These bulls were based in Tanga Urban, so we were able to use our own (Chinese) bikes to go there. Two 'extensionists' (field veterinarians) went with us. A bit unaccustomed we started to tie the hind limbs of the bulls to protect ourselves from injuries. After 20 minutes we were proud possessors of our first samples! During five weeks we sampled 60 bulls in seven different districts. Most of the time we could use the car of the project, with a driver. Sometimes we had to sit on the back of a motorbike. The places nearby were visited by bike.

It was possible to sample 4 or 5 bulls a

The project office of the Small Holder Dairy Extension Programme in Tanga (Photo: Hulsebosch)



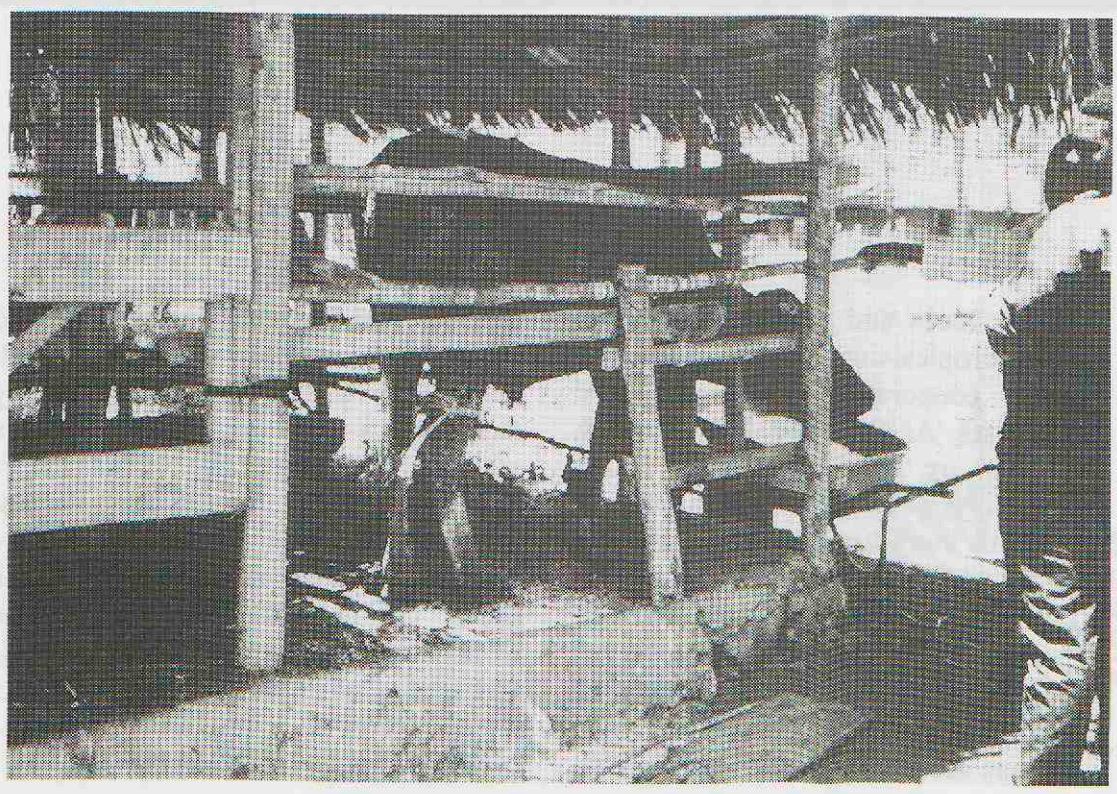
day. A few good quality ropes, a strong Tanzanian extensionist and sometimes a few cc xylazine was enough to handle the bulls. We learned quick to be thrifty with the xylazine, since those inland breeds appeared to be very sensitive. Although it was a hard job to do (35° C. and a humidity of 70%) there was always enough time left to drink a coconut or to eat some fresh roasted cashewnuts before driving back to Tanga.

We always tried to process the samples within 8 hours. Our laboratory was established in the veterinary clinic in Tanga. It was a small and old laboratory, but all the necessary equipment was available. This lab was our 'second home' for three months. We spent there at least two hours a day, seven days a week under really tropical conditions (35° without airconditioning or even a fan). Here, the work consisted out of inoculation of the samples on selective media. We had to carry out different biochemical tests and had to check the *Tritrichomonas* media on the typical movements of the protozoa.

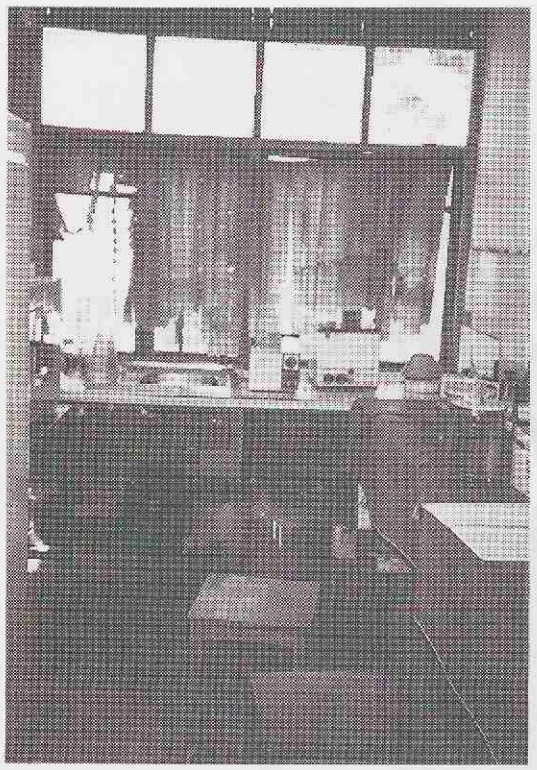
Results!

All the samples for *Tritrichomonas foetus* appeared to be negative. Three samples were positive for *Campylobacter*. Because we could not do the final determination of the *Campylobacter* spp. in Tanzania, these suspicious samples were sent to the Netherlands. It was really unexpected at the end of our practical period, that the 3 suspicious samples were determined as *C. fetus* subsp. *venerealis*.

The second part of our traineeship was a pilot study for the detection of a *Brucella abortus* infection in dairy cattle. The data were collected for Drs. Z. Bercovich (ID-DLO in Lelystad). The objective of this study was to determine the possibility to differentiate between vaccinated and naturally



Many farmers in Tanga Region have a zero-grazing farming system (Photo: Van der Heijden)



A small and old laboratory, but all the necessary equipment was available; it was our 'second home' for three months (Photo: Van der Heijden)

infected animals by using a Delayed Type Hypersensibility Test (DTHT). For this purpose we had to inject two different types of *Brucella* antigens into the skin and had to measure the thickness of the skin after 48 and 72 hours. For the detection of an antibody titre we had to take a blood sample of each animal. In six weeks about 150 animals were sampled. Many people warned us for dangerous bulls, but we could better have been warned for dangerous heifers. It was a totally new experience to see a kind of 'grand prix' heifers, that jumped easily over an height of 1 meter. It was a hard job to catch a blood sample, but most of the time we succeeded.

Some reflections

After three months of working but also some relaxing and swimming in the Indian ocean, we had to start writing the first draft report. Luuk and Birgit tried to convince us that this would save us a lot of time once we were back in the Netherlands. Obedient as we were, we worked on the draft for five days. We had three weeks left for a holiday. We visited Arusha, a few game reserves, Zanzibar and concluded that Tanzania is a very beautiful country, where we had an unforgettable time.

On december 30th, 1995, we took the plane back to Schiphol. By then the temperature in the Netherlands was 10^0 C below zero and the topic of conversation was "de elfstedentocht". This was going back to the real life. Talking about the cold weather, gaining enough study marks and always hurry up. We couldn't imagine a bigger culture shock!

After 20 minutes we were the proud possessors of our first samples! (Photo: collection Hulsebosch)

Willieanne van der Heijden and Jorunn Hulsebosch

FOR YOUR INFORMATION 2

InfoAgrar

InfoAgrar is a service of the Swiss Agency for International Development (SDC) responsible for documentation of specialized literature and the relay of information in the field of agriculture and livestock production. InfoAgrar's goal is to supply those active in the field of development cooperation with the necessary agricultural information. InfoAgrar has a specialist library of 3,600 books and journals on tropical and subtropical agriculture and development cooperation. The agricultural data bases AGRIS and TROPAG & RURAL are available on CD-ROM and InfoAgrar has on-line access to numerous literature data bases as CAB ABSTRACTS, IBISCUS and AGRICOLA and specialist libraries. Present services are: making searches; answeing subject specific enquiries; offering assistance in the search of information; acting as mediator to other information services and resource persons. In the future more services are foreseen, such as: project documentation; continually supplying a selected group of users with relevant information; a newsletter; and being present on Internet. If you are interested in the activities or services of InfoAgrar you can ask for more information: InfoAgrar, Swiss College of Agriculture, Länggasse 85, CH-3052 Zollikofen, Switzerland (tel.: +41.31.9102190, telefax: +41.31.-9102154, e-mail: info@infoagrar.ch).

Tropical animal health and production and the Faculty of Veterinary Medicine in Utrecht

Utrecht University, one of the 14 universities in the Netherlands, includes 14 faculties. Its Faculty of Veterinary Medicine is the only veterinary faculty in the Netherlands and, as a result of its scientific and educational standards, it has been accredited by the American and Canadian Veterinary Medical Associations since 1973. Within the Faculty there are 11 departments. Research on tropical animal health is mainly conducted by the Department of Infectious Diseases and Immunology but other departments are also actively involved in collaborative research projects in the tropics.
In 1987 the Faculty's Office for International Cooperation (BIC) started with the coordination and extension of the international activities. In 1989 the Committee for the Advancement of Tropical veterinary Science (CATS) was established at the Faculty. The main objective of CATS is the perpetuation and promotion of research and education relevant to the tropics. The organization of the Symposia on **Tropical Animal Health and Production** is an activity of BIC and CATS. From 1990 onwards a yearly symposium has been organized. The themes were:

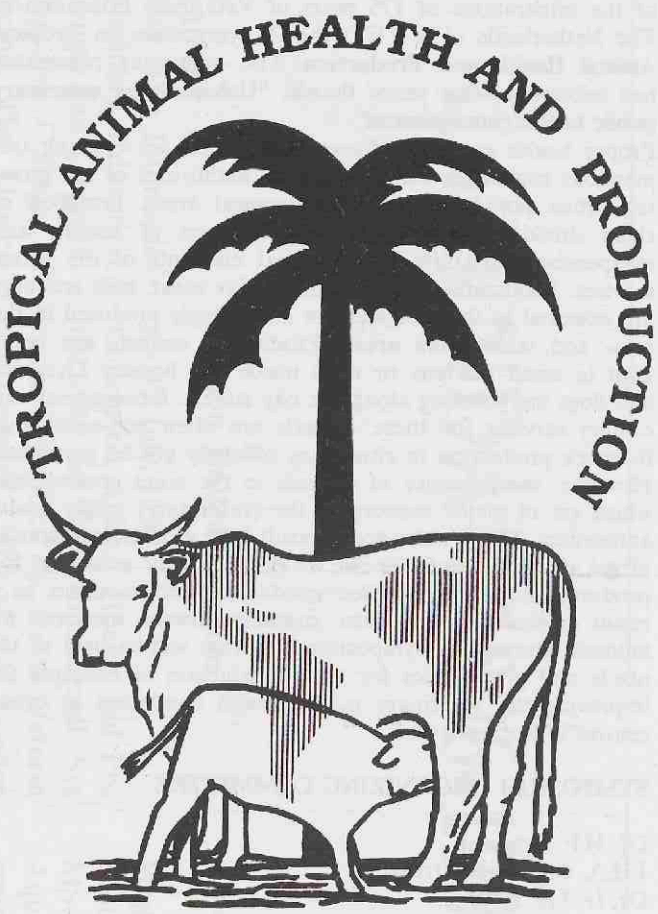
1990: **Contributions and perspectives from the Faculty of Veterinary Medicine, Utrecht University**
1991: **Research for development: policies, priorities and options**
1992: **Bovine theileriosis**
1993: **Recent developments in veterinary epidemiology**
1994: **Application of biotechnology**
1995: **Helminth diseases of ruminants: diagnosis, epidemiology, and control**

For further information please contact:
Office for International Cooperation
Faculty of Veterinary Medicine
P.O. Box 80.163, 3508 TD Utrecht, The Netherlands.
Tel.: +31.30.2532116, Telefax: +31.30.2531815
E-mail: bic@bic.dgk.ruu.nl

1821-1996 175 years Veterinary Education in The Netherlands

27 SEPTEMBER, 1996

7th SYMPOSIUM ON



Urbanisation: veterinary public health consequences

Time: 09.00 - 16.00 hours
Location: Faculty of Veterinary Medicine
Yalelaan 1, De Uithof, Utrecht
The Netherlands

7th Symposium on

TROPICAL ANIMAL HEALTH AND PRODUCTION

Urbanisation: veterinary public health consequences

In 1996 the Faculty of Veterinary Medicine organizes as part of the celebrations of 175 years of Veterinary Education in The Netherlands (175 VET) the 7th symposium on **Tropical Animal Health and Production**. The organizing committee has selected as this years' theme: "**Urbanisation: veterinary public health consequences**".
Proper health care and disease prevention are creating tremendous challenges for the medical authorities of the growing urban population in many tropical areas. Provision of clean drinking water and the production of healthy and inexpensive foodstuffs are essential elements of the urban services. Foodstuffs of animal origin like meat, milk and eggs are essential in the diet and are increasingly produced in the peri- and intra-urban areas. Production animals are being kept in small gardens or even inside the houses. Livestock and dogs are roaming along the city streets. Government veterinary services for these animals are often non-existing as livestock production in cities may officially not be permitted. However, the presence of animals in the cities creates risks which are of major concern to the (veterinary) public health authorities. These risks are a result of e.g. manure disposal, illegal slaughter and disposal of offal, sale of meat and by-products under uncontrolled conditions, and zoonoses as a result of crowding and close contacts between man and his animals. During the symposium attention will be paid to the needs and possibilities for the introduction of concepts for improving the veterinary public health conditions in urban centres in tropical areas.

SYMPOSIUM ORGANIZING COMMITTEE

Dr. H.F. Egberink
J.H.A. de Gooijer (treasurer)
Dr. Ir. J.H. Houben
Prof. Dr. F. van Knapen (chairman)
Dr. R.W. Paling (secretary)
Dr. V.P.M.G. Rutten

PROGRAMME 27 SEPTEMBER, 1996

08.30 - 09.00 h. Registration

Opening

First morning session

Veterinary public health

Relevance of veterinary public health in urban areas in the tropics.
Dr. F.X. Meslin (World Health Organization, Geneva, Switzerland).

Conditions and public health requirements in meat production in Zimbabwe.
Dr. W. Chadambura (Department of Veterinary Services, Meat Hygiene, Chinhoyi, Zimbabwe).

Second morning session

Production and consumption

Valorization of animal by-products for reasons of safety and quality.
Prof. Ir. B. Krol (Utrecht University, Utrecht, The Netherlands)

Public health risks of parasitic infections connected with the consumption of non-conventional animal food.
Dr. V. Kumar (Prince Leopold Institute of Tropical Medicine, Antwerp, Belgium)

Present status of tuberculosis as zoonosis in urban areas.
Drs. J.H. Bongers (DLO-Institute for Animal Science and Health, Lelystad, The Netherlands)

First afternoon session

Living in a healthy environment

Taenia solium cysticercosis is eradicable. Latin America lesson.
Prof. Z.S. Pawlowski (Karol Marcinkowski University of Medical Sciences, Potznan, Poland) and *Dr. P. Schantz* (Centers for Disease Control and Prevention, Atlanta, USA).

Public health risks of inter-urban production and consumption of small stock in Tete Province, Maputo, Mozambique.
Dr. M. Harun (Eduardo Mondlane University, Maputo, Mozambique)

Second afternoon session

Animals as source for disease in humans

The intra-urban epidemiological pattern and risks of leishmaniosis.
Dr. B.E. Pinelli, Dr. V.P.M.G. Rutten and Prof. Dr. E.J. Ruitenberg (Utrecht University, Utrecht, The Netherlands).

The intra-urban epidemiological pattern and risks of rabies.
Drs. K. de Balogh (Eduardo Mondlane University, Maputo, Mozambique)

Ebola virus: a 'new' zoonosis.
Prof. Dr. A.D.M.E. Osterhaus (Utrecht University, Utrecht, The Netherlands)

Epilogue and closing

REGISTRATION FORM

I wish to attend the 7th Symposium "Tropical Animal Health and Production. Urbanisation: veterinary public health consequences" on 27 September, 1996 at the Faculty of Veterinary Medicine, De Uithof, Utrecht.

Registration is free, but please check box for lunch reservation.

☐* I wish to reserve lunch (Dfl. 15,- to be paid at the registration desk)

☐ I do not wish to reserve

* check one box

Name: .....

Institute: .....

Address: .....

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Please forward **before September 6, 1996** to:

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Faculty of Veterinary Medicine
P.O. Box 80.163
3508 TD Utrecht
the Netherlands.
Telefax: +31.30.2531815
E-mail: bic@bic.dgk.ruu.nl

CALENDAR 1996-1997

Atlanta, USA
29 June - 1 July, 1996
14th Symposium on 'The Internationalization of veterinary Education. Strengths, Challenges and Opportunities'. Organized by: College of Veterinary Medicine, The University of Georgia. Objectives: Internationalization of veterinary medical curricula; Compare and contrast curricula from the various world sectors; define areas of international veterinary medicine important to the veterinary profession; establish goals in a veterinary college relative to international offerings etc. Information: College of Veterinary Medicine, The University of Georgia, Athens, Georgia 30602-7372 (Tel.: +1.706.5425728).

Bologna, Italy
7 - 10 July, 1996
14th International Pig Veterinary Society Congress. Information: New team, Via C. Ghiretti, I-43100 Parma (Tel.: +39.521.293913, telefax: 39.521.294036, e-mail: IPVS96@bovet.cineca.it).

Great Keppel Island, Australia
8 - 11 July, 1996
4th International Conference on Fertility Control for Wildlife Management. Location: Great Keppel Island, Queensland. Information: Fertility Control Conference, c/-ACTS, GPO Box 2200, Canberra, ACT 2601 (Tel.: +61.6.2573299, telefax: +61.6.2573256, e-mail: ACTS@ozemail.com.au).

St. Albans, United Kingdom
8 July - 16 August, 1996
8th International training course on identification of helminth parasites of economic importance. Information: Dr. L.M. Gibbons, International Institute of Parasitology, 395 A Hatfield Road, St. Albans, Herts AL4 0XU (Tel.: +44.1727.833151, telefax: +44.1727.868721, e-mail CABI-IIP@cabi.org).

London, United Kingdom

8 - 12 July, 1996
Course on Animal Health and Productivity in Semi-commercial Systems. Organized by: Royal Veterinary College, University of London. Programme: Farming systems; Health and productivity; Working with people and their animals; Formal approaches; Ethno-veterinary approaches; Interactive enquiry techniques and Complimentarity of approaches. Fee £ 500.00. Reservation: Mrs. Carole Brizuela, Royal Veterinary College, Boltons Park, Hawkshead Road, Potters Bar, Herts. EN6 1NB (Tel.: +.44.1707.-666338, telefax: +44.1707.647085)

Jerusalem, Israel
4 - 9 August, 1996
8th International Symposium of Veterinary Laboratory Diagnosticians and 3rd Joint OIE/WAVLD Session on biotechnology. Information: Secretariat, VIIIth International Symposium of Veterinary Laboratory Diagnosticians, P.O. Box 50006, Tel Aviv 61500 (Tel. +972.3.-5140014, telefax: +972.3.5175674).

Utrecht, The Netherlands
3 September, 1996 - 28 February, 1998
International Master Course "Veterinary Epidemiology and Herd Health". Organized by: Department of Herd Health and Reproduction of the Faculty of Veterinary Medicine. Programme: The Master of Science course offers an introduction to the application of epidemiological methods specifically applied to the field of population oriented studies in animals. Course fee: Dfl. 15,000,- . Closing date for registration 1 July, 1996. Information and registration: Office for International Cooperation, Faculty of Veterinary Medicine, P.O. Box 80.163, 3508 TD Utrecht (Tel.: +31-.30.2532116, telefax: +31.30.2531815, e-mail: bic@bic.dgk.ruu.nl).

Wageningen, The Netherlands
September 1996 - March, 1998
MSc Animal Science and MSc Aquaculture Programmes. These courses are designed to impart advanced knowledge, modern approaches in scientific research, analytical skills and critical attitudes, to enable graduates to develop animal production or aquaculture in their own countries. Information: Office for Foreign Students, Wageningen Agricultural University, P.O. Box 453, 6700 AL Wageningen.

Liverpool, United Kingdom
September, 1996 - August, 1997
Master of Science Course in Veterinary Parasitology. Organized by: Liverpool School of Tropical Medicine. The course is composed of 3 terms: Formal tuition covering all major groups of parasites and their vectors; Some of the most important veterinary parasites are selected and studied in depth; Personal research project. Information: The joint Masters Course Secretary, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool L3 5QA (Tel.: +44.151.7089393, telefax: +44.151.7088733, e-mail: williadj@liverpool.ac.uk).

Changchun, PR China
12 -14 September, 1996
2nd International Seminar on non tsetse-transmitted animal trypanosomiasis (with the participation of the OIE). Information: M. le Docteur L. Touatier, 228, bd du Président Wilson, 33000 Bordeaux, France.

Utrecht, The Netherlands
27 September, 1996
7th International symposium: Tropical Animal Health and Production. Theme: 'Urbanization: Veterinary public health consequences'. Organized by the Committee for the Ad-

vancement of Tropical veterinary Science (CATS) and the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University. Registration before 1 September, 1996 to Office for International Cooperation, Faculty of Veterinary Medicine. P.O. Box 80.163, 3508 TD Utrecht (Telefax: +31.30.2531815, e-mail: bic@bic.dgk.ruu.nl).

London, United Kingdom
October, 1996 - October, 1997
MSc Course on Wild Animal Health. MSc course for graduates in veterinary and relevant sciences. Including: practical and theoretical instruction in the husbandry and nutrition of wild animals, taxonomy, population biology, conservation genetics, welfare and ethical aspects, epidemiology, immunology, infectious and non-infectious diseases, disease investigation, restraint, preventive medicine and surgery and an individual research project. Organized by: The Institute of Zoology (Zoological Society of London) and The Royal Veterinary College (University of London). Information and registration: Registrar, The Royal Veterinary College, Royal College Street, London NW1 OTU (Tel.+ 44.171.4685000, telefax: +44.171.-3882342).

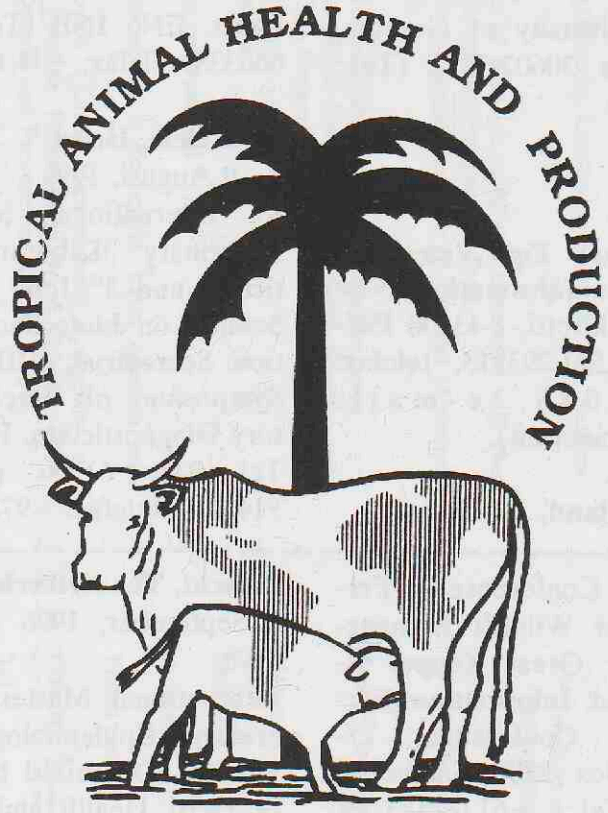
Vienna, Austria
21 October - 15 November, 1996.
International Training Course on the Use of Molecular Techniques (PCR, DNA Probes) for the Diagnosis and Monitoring of the Major Livestock Diseases. Organized by: International Atomic Energy Agency with the support of the FAO/IAEA Joint Division of Nuclear Techniques in Food and Agriculture. Programme: Introduction of concepts of the use of PCR and DNA probes in animal disease diagnosis and monitoring; Provide practical training in these techniques; Provide training in the set up of a diagnostic PCR laboratory. Location: Seibersdorf near Vienna. Application: On standard IAEA form 'Nomination for training course', through Ministry of Foreign Affairs or UNDP Office to: IAEA, P.O. Box 100, A-1400 Vienna (Telefax: +43.1.20607). Closing date: 19 August,1996. IAEA scholarships are available for participants from developing countries.

Nagasaki, Japan
17 - 22 November, 1996
14th International Congress for Tropical Medicine and Malaria. 'New goals for the 21th century'. Organized by: Science council of Japan, Japanese Society of tropical Medicine and International federation for Tropical Medicine. Information: Dr. Hideyo Itakura, Secretary General 14th ICTM Secretariat, c/o The Institute of Tropical Medicine, Nagasaki University, 1-1 2-4, Sakamoto, Nagasaki, 852 Japan.

Bornholm, Denmark
22 - 24 May, 1997
XVIII Symposium of the Scandinavian Society for Parasitology, with a special mini-symposium on Human and Veterinary Tropical Parasitology. Information: Secretariat of Symposium Bornholm, Danish Bilharziasis Laboratory, Jaegersborg Allé 1 D, DK-2929 Charlottenlund (Tel.: +45.39.626168 and telefax; +45.39.-626121).

27 SEPTEMBER, 1996

7th SYMPOSIUM ON



Urbanisation: veterinary public health consequences

Time: 09.00 - 16.00 hours
Location: Faculty of Veterinary Medicine
Yalelaan 1, De Uithof, Utrecht
The Netherlands

EQUATOR

VOLUME 8, NO.4 NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

ISSN 0923-3334

EQUATOR is a periodical of the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University.

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Printed by
Elinkwijk b.v.

Editorial Office
Faculty of Veterinary Medicine
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P.O. Box 80.163
3508 TD UTRECHT
The Netherlands
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Fax: +31.30.2531815
E-mail: bic@bic.dgk.ruu.nl

EQUATOR is published bi-monthly.

Subscription is free of charge. For changes in address and termination of subscription please return the corrected label to the editorial office.

July/August, 1996

from the editor

From the editorial of the last issue of EQUATOR you may remember that the Faculty of Veterinary Medicine celebrates this year 175 years of Veterinary Education in the Netherlands. On this occasion EQUATOR takes its readers back in time to look at the activities of some of the veterinarians who graduated from the Utrecht faculty and started a career in the 'early days' of veterinary medicine in the tropics. With Prof. Hoekstra, who graduated in 1935, the interviewer looked eastwards to the former Dutch East Indies. In this issue of EQUATOR we present an interview with a graduate from the next generation, Drs. Henk Kuil who graduated in 1955 and who went westwards to Surinam in 1956. In those days Surinam was independent, but still a part of the Kingdom of The Netherlands. After 8 years, in 1964, he returned to The Netherlands, and became a staff member of the Institute for Tropical and Protozoan Diseases. Following a short stay of 2 years in Utrecht, Henk Kuil left for Zaria, Nigeria. In those years the Utrecht faculty was providing support to the newly established (1962) Faculty of Veterinary Medicine of the Ahmadu Bello University. More about this part of the history you will read in the next issue of EQUATOR.

The 'tropical career' of our guestwriter of this month started, may be not as a total coincidence, in Nigeria. Dr. Ron Dwinger, a 'third generation' veterinarian in tropical veterinary medicine, graduated in Utrecht in 1976, where he was trained and made aware of the interesting challenges of a career in the tropics by, who else than ..... Henk Kuil.

Long time readers of EQUATOR may recognise the name Dwinger. From the very first issue of EQUATOR in 1989, we have listed his scientific articles in the column 'Recent Publications'. His articles were based on his work in Kenya, The Gambia and Costa Rica. Again in this issue you will see references of his recently concluded work in Costa Rica. From Costa Rica he went to Vienna (Austria), where he is in charge of a project funded by the Directorate General for Development Cooperation (DGIS) of the Ministry of Foreign affairs of The Netherlands and which is executed by the International Atomic Energy Agency (IAEA) in Vienna. In his article he gives us a look behind the screens of the work by a Dutch veterinarian at the head quarters of one of the organizations of the United Nations.

From his article on disease diagnosis and control to the next is just a step to an other section of IAEA. Dr. K. Boohdoo of Mauritius brings us up to date on his work on fertility control in dairy cattle, that he conducts with support from IAEA. The link with the article by Dr. S. Ifar of the Brawijaya University of Malang, Indonesia, on the role of ruminants in mixed farming in East Java is also interesting. Both studies, on Mauritius and Java, conclude that interventions which improve the quality of feedstuffs, may significantly improve the productivity of the livestock kept by smallholders.

WORKING FOR THE VETERINARY SERVICE IN SURINAM

The second "pioneer" in tropical veterinary medicine the editors of EQUATOR spoke with is Drs. Henk Kuil. He wanted to start a country practice somewhere in the Netherlands after graduation, but went to Surinam instead.
When Henk Kuil arrived in Surinam in 1956 this country was not a colony anymore but a so-called territory overseas, a part of the Kingdom of the Netherlands. Surinam was more or less independent. Only foreign affairs and defence were handled in The Hague. The veterinarians working in the veterinary service were employed by the government of Surinam.
Surinam has a varied ethnic society. The Indians live in the interior, while most of the Creoles who originate from Africa live in the cities. There are Hindustani, originating from India and Pakistan. These people came as contract workers at the end of the nineteenth century and stayed after serving their contract. Further there are Javanese, Chinese, and Jews who came from Brazil originally. And of course there was also a reasonably large group of Dutch people. Most of Kuil's contacts were with the Hindustani, because they were cattle breeders.
What follows is the story of a veterinarian who always planned things for "just a while".

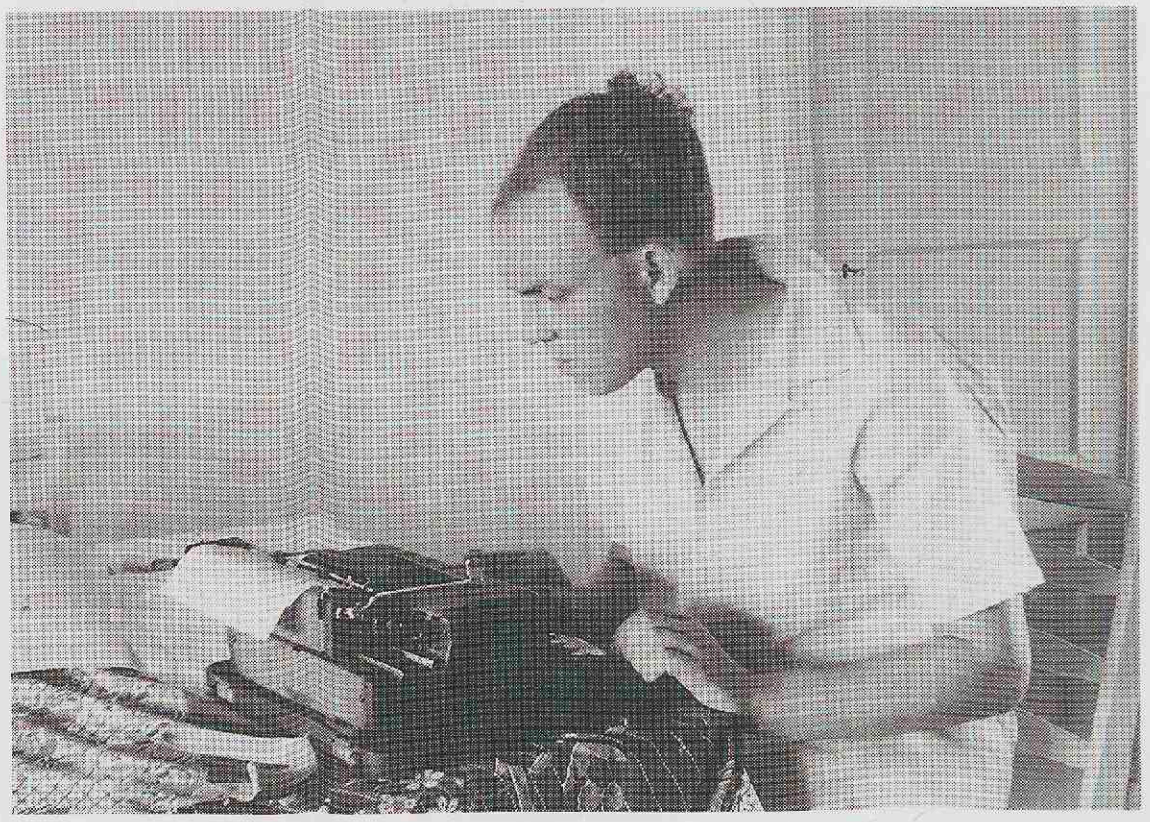
Life after graduation

When I was a veterinary student my interest in the tropics was not very strong. Like 95 percent of my fellow students I had the intention to start a "country practice" after graduation. But I discovered that I was also interested in the tropical diseases. In that time there was a "tropical circle" at the Institute for Tropical Diseases in Utrecht. This circle was organised by students and was supported by the staff of the institute. I was present at every meeting, during which one of the students or a veterinarian who happened to be in the Netherlands gave a presentation on a tropical disease or the situation in the tropics. So, often you could find me there during the last years of my study.
In this period many students had an interest in New Zealand. It was not possible to study veterinary medicine in New Zealand and therefore the authorities tried to find veterinarians in Europe, first in the UK and later also in the Netherlands. We heard very enthusiastic stories of the people who went there, so I decided to go to New Zealand if I could not find a job in the tropics. In my idea this employment would only be for a limited period, because my ideal was still to work in a country practice.

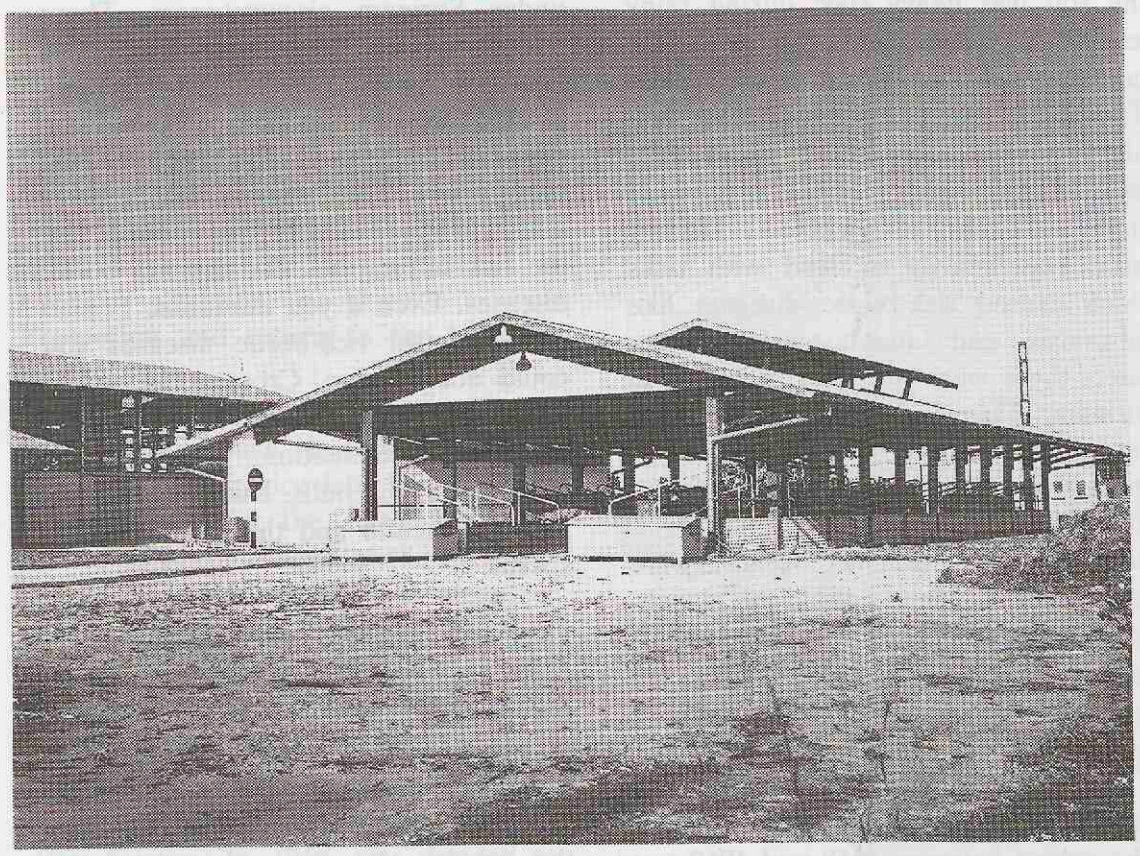
To start with I applied for a position in New Zealand but it took a lot of time before I got a reply. In the meantime I read an advertisement in the Veterinary Journal for a position of governmental veterinarian in Surinam.They wanted a general veterinarian. You had to cover the whole range of veterinary disciplines from meat inspection to small animal practice.
I applied in The Hague at one of the offices of Surinam and was engaged very quickly. During the interview no veterinarians were present, only officials. Afterwards I found out that the opinion of Prof. Dr. F.C. Kraneveld, the professor of tropical and protozoan diseases in Utrecht was decisive in this matter. Apparently his advice was positive.
I had not graduated yet and I decided to do a traineeship at the Institute in Utrecht. To cut a long story short: I graduated in October 1955, my wife and I got married and we took the boat to Surinam in March 1956.

The Surinam veterinary service

In Surinam only two governmental veterinarians were present at that time, and I became the third, stationed at the bureau of the veterinary service, which was located at the old slaughterhouse of Paramaribo. It was a bit messy there; cattle were still slaughtered while lying on the floor, partly by means of a ritual throat cut without stunning the animal first.



The newly appointed government veterinarian keeps contact with his homeland (Photo: collection Kuil)



The new slaughterhouse in Paramaribo (Photo: Kuil)

From this office the veterinary service was managed. My first task the first couple of years was pregnancy diagnosis in cows through rectal exploration. This was done early in the morning before the animals were slaughtered. I learned this technique very well. If you had doubts you could let the animal pass and check again after slaughtering. But in principle it was forbidden to slaughter pregnant animals.

You needed to know a lot on many subjects, but not on a high level. Another task was to visit cattle farms in the areas surrounding Paramaribo. Well, surrounding, sometimes I had to travel more than 50 kilometers. Livestock is kept in the coastal area. In the tropical rainforest, the habitat of the Indians and Creoles, livestock is not present. Only once I visited a priest at a mission post in the forest who kept 3 cows. Cattle production is concentrated around Paramaribo, in the western region in Nickerie and to the east in Moengo. The western region is the part of the country where rice is produced. After the harvest cattle were fed in the rice fields.

Moengo was the location of the bauxite company, which owned a huge dairy cattle farm. This farm was managed excellenty and we had to go there on a regular basis to test the cattle for tuberculosis, brucellosis, pregnancy and for general health control. These investigations were not done on the other farms. In that time in Surinam there were about 40,000 head of cattle spread over hundreds of small farms. The herd size varied from 2 or 3 to about 40 cows.

To make traveling worse, Surinam is cut from north to south by several rivers. You have to cross the rivers with a ferry, but these do not have a regular timetable, so sometimes I had to wait for quite a while. Despite the loss of time it was still very interesting.

Were the farmers obliged to have their cattle slaughtered in the slaughterhouse?

Yes. They could have their cattle slaughtered in the slaughterhouse in Paramaribo or in one of the smaller slaughterhouses in the districts.These slaughterhouses were quite simple, with a concrete floor and a roof of corrigated iron, but each had its own meat inspector. These inspectors were trained by the veterinary service in Paramaribo.

A medical genius

In the afternoon - if we had time - we did the companion animal practice. Working hours were from 07.00 hours to 13.30 hours, except for Saturday, because then we finished at 12.30 hours. As you see, we worked six days a week in that time.

Although the companion animal practice was private, we were obliged to do it. My contract stated that we had to treat all animals that were brought in. I liked this aspect very much, because the large animal practice was very extensive. The consequence was that farmers that lived far from Paramaribo often waited too long to call us veterinarians if they had a patient. Therefore the prognosis was often unfavourable. Espccially in the time there was little fodder, the animals lay often exhausted on the ground. They could not get up anymore. Only a few times I was able to accomplish a dramatic recovery of the patient. Once I diagnosed milk fever. By coincidence I had brought the necessary drugs, so 15 minutes after an injection the cow got up again. At such a moment the farmers look upon you as a medical genius. It was annoying when it happened because in the surroundings the other farmers expected miracles now in cases of total exhaustion of their animals. It is not very stimulating if you have to drive for more than an hour and can do nothing upon arrival.

A new slaughterhouse in Paramaribo

After a while plans were developed to build a new slaughterhouse in accordance with Dutch standards. Of course we were focussed on the Netherlands, meaning that a Dutch slaughterhouse was developed, adapted for the tropics. The new slaughterhouse was opened in 1961. It was rather modern, with cooling facilities and tackles, so that the animals could be slaughtered hanging instead of lying down. The head of the butcher's vocational school, Drs. C.C. van de Watering, visited us and advised how the process could be improved in such a way that the slaughtering would be more hygienic and more human. We also wanted to improve the phase after slaughtering by cooling and good procedures for boning the carcasses, which is a skill in itself. By treating meat this way the quality, which was not always optimal, could be optimized.

We also discussed possibilities to make ritual slaughtering more human. The animals were laid on their side, their head was drawn back and with a big knife the throat was cut. We have tried to convince the islamic butchers that electrical stunning could be a solution. Fortunately, at that moment we were visited by an islamic priest from Pakistan. He belonged to the more liberal denomination and had no objections

against stunning before ritual slaughtering The butchers had no objections either, under the condition that the animals were able to recover after stunning. So, I gave a demonstration and it worked: after a couple of minutes the animal shook its head and got back on its feet. Despite this little success we never succeeded to dispel the resistance in the religious community.
For a while a teacher from the Netherlands came over to teach the butchers how to treat the meat after slaughtering, how to bone, how to cut the different pieces and what you can do with them. He also taught the Surinam house wifes what you can do with the different pieces of meat, a kind of cooking course. You see, if the customer does not ask for a product, the butcher will not provide it. This had some effect, but the most important innovation was the cooling. When I arrived in Surinam, 99 percent of the meat was sold immediatley after slaughtering in butcher's shops.

Other duties

Another task of the veterinary service was to inspect these butcher's shops on hygiene. We employed somebody to do this. If there were regular complaints I had to go myself. If the owner still refused to obey the rules, the shop could be closed.
If somebody observed animal abuse I had to book the owner, because I was also an honorary inspector. My last year in Surinam I even had a license to carry a pistol. Sometimes this came in handy. The traffic consisted of cars of course, but also of donkey carts. There were often collisions and when a donkey broke its leg there was nothing I could do but shoot it. Before I had my own pistol I sometimes had to borrow one of a police officer. Usually this was not a problem because they did not want to do it themselves and also because I was a sort of colleague.

Veterinary problems

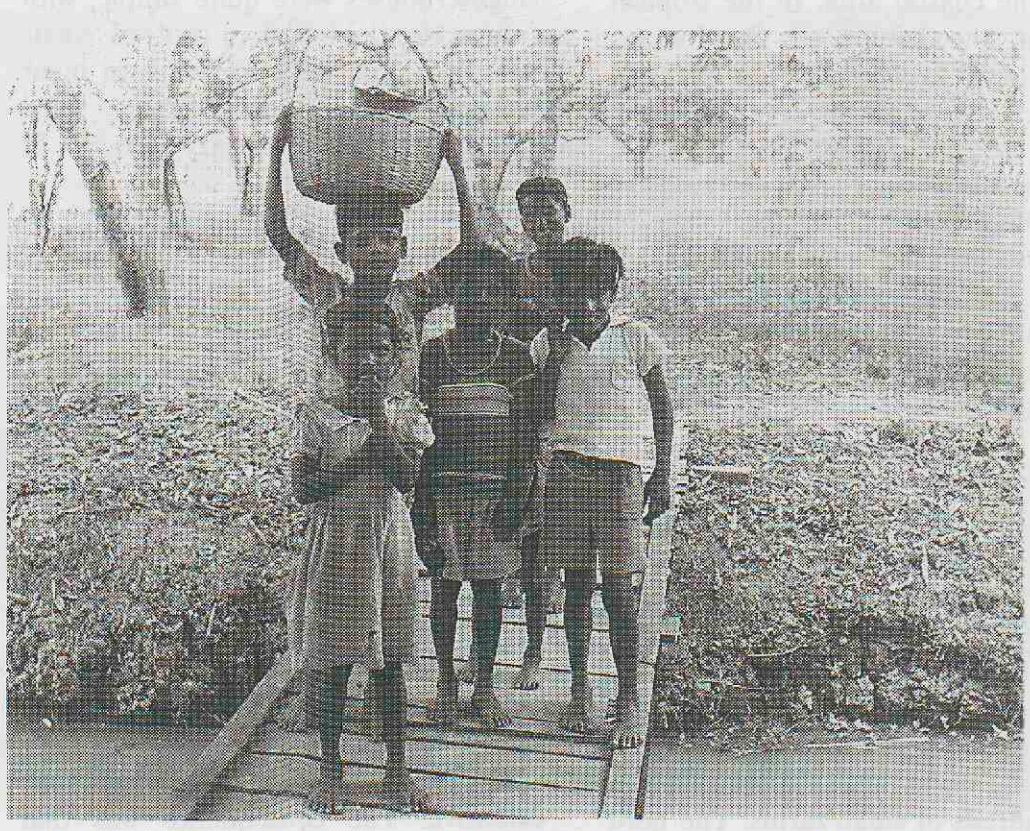
The main problems in livestock production were feeding and parasites. Surinam has a tropical lowland climate, with 2,000 mm rain per year devided over 2 rainy seasons. It even rained in the dry periods!
The soil was heavy clay; during rainy periods the water could not penetrate the soil which changed in a big puddle of mud. As you can understand helminths thrive under these circumstances, causing a high mortality in calves.
Ticks were another problem. Usually cattle was heavily infested with ticks which caused tick-borne diseases like babesiosis and anaplasmosis. Fortunately there were no cases of rabies in Surinam. Therefore rabies control at the border was one of our tasks. It was not allowed to import dogs that were not vaccinated.
Dogs without a dog license disc were caught and stationed behind the slaughterhouse. The owners could collect them there. If they were not collected they were killed. This was always an unpleasant task.

Cattle breeding

The period between 1958 and 1960 was an interim period for me. I worked for the Cattle Breeding Service which had to promote cattle breeding and cattle production. The service also included a grassland section which focussed on the introduction of better types of grasses. I did research on cattle, especially on helminths, ticks and tick-borne diseases and mastitis, which was also a problem. On the experimental farm "Landsboerderij" researchers experimented with crosses of the indigenous breed, the criollo, the imported Zebu and the Dutch Frisian cattle. The idea was to create a cross which was able to produce a reasonable amount of milk under Surinam circumstances. These circumstances included production based on a diet of the available grasses because we did not want to use much concentrates. As stated before the climate is hot and humid. Dutch Frisians would not survive the climate, nor the tick infestations nor the tick-borne diseases. Even if you immunize Frisian cattle against tick-borne diseases you could not be sure. Crosses did better. We were able to cross breed due to artificial insemination. The service possessed some bulls. I was responsible for their health and the quality of the sperm.

Food and mouth disease at the border

At a certain moment there was an outbreak of Foot and Mouth disease in French Guyana. The only border is the Marowijne river. We had to take measures to prevent the disease to cross the border. People arriving on the airport even had to walk on desinfection mats; and you had to station staff there to control the effectuation of the measures.
Another example is a travelling circus from Brazil with all sorts of animals. I had to estimate the risks before they were allowed in the country. What kind of animals are there? Where do they give performances? Will they have contact with local animals? You cannot keep a circus for 6 months in quarantine.
There were also the Brazilian schooners which smuggled American cars and whiskey to Brazil. On these schooners



In the interior the children were always pleased to assist the visiting veterinarian by carrying his goods (Photo: Kuil)

the crew often kept pigs. This is an extra risk for foot and mouth disease so I gave the scippers the choice: either leave the harbour or get your pigs killed. Sometimes I had to be accompanied by police officers to bring this news.

Promotion and return to the Netherlands

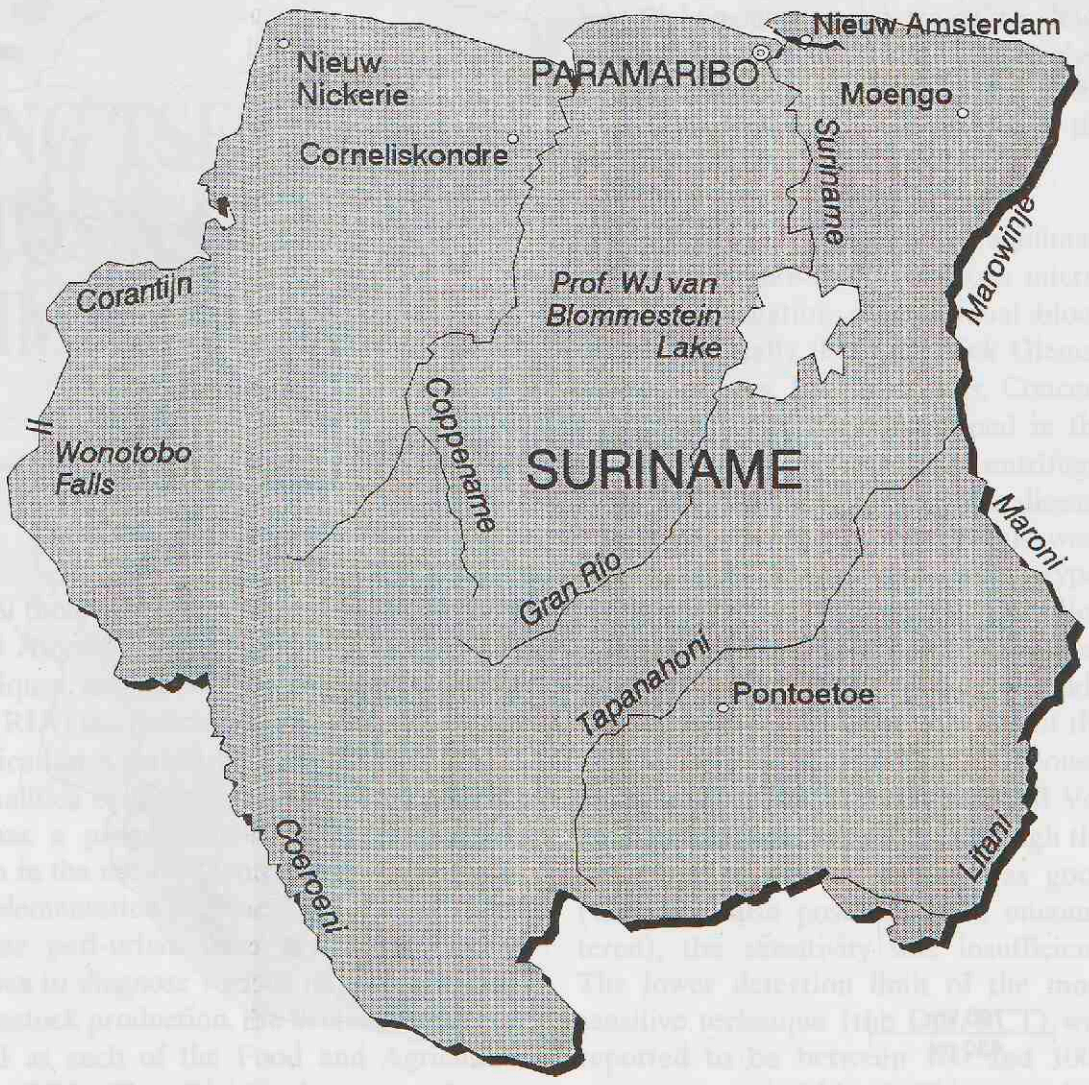
In 1961, just before the opening of the new slaughterhouse, the former head of the veterinary service left; I was taken from my post at the cattle breeding service to become head of the veterinary service. This promotion meant a shift, mainly in responsibilities, because as head I was responsible for everything. But of course I had two good colleagues, among which the first Surinam veterinaria

After 8 years, in 1964, you decided to return to the Netherlands

Initially I wanted to stay only 5 years. But I liked to be in Surinam, not only to work, but also to live. My two children are born there and we grew into the community. But one of the disadvantages is that you get isolated. Of course you receive some journals and books, but your colleagues are and remain at the same level as you do yourself, there is no development. Therefore I decided to leave at a certain moment. During my years in Surinam I had maintained my contacts with the Institute for Tropical Diseases in Utrecht, in the frame of the research programme I did. I had contqcts with Bool and later Folkers and later onagain with Prof. Wilson, the head of the Institute. I had collected many blood samples from the stray dogs that had to be killed, and I took these samples with me to the Netherlands. The research topic in the Netherlands at that time was toxoplasma. So I was allowed to test the sera at the Institute. This was at a time that much more was possible at Utrecht University than nowadays. It was not so difficult to increase the number of staff. In general, it was not difficult to get a job as a veterinarian after graduation. At a certain moment Prof. Wilson came to me and asked if I was interested in a job at the Institute. I thought about it and concluded that I would like it for a while. With me these things are always "for a while". So I said "Yes!, but under the condition that I could spend some more years abroad. At that time Prof. Wilson was planning a project in Zaria, Nigeria, where a faculty of veterinary medicine was to be established. Wilson had been the head of the veterinary services in North Nigeria before he was appointed professor in Utrecht. Unfortunately and unexpectedly Prof. Wilson died in September 1965. Because I was the oldest staff member around and other senior staff were already at the project in Nigeria, I became the man in charge at the Institute for a while. It looked to me that I could forget about Nigeria, but the Faculty decided I could go. In March 1966 we left for Nigeria.

To be continued

Jean de Gooijer



A FOLLOW-UP REPORT FROM MAURITIUS

Introduction

Mauritius is an island east of Madagascar. The Mauritian dairy industry is small. The country imports most of the milk for local consumption, because milk from abroad is cheaper than locally produced milk. It is tempting not to pay due attention to the causes of the problems the small scale dairy farmers encounter. However, the future of these cheap imports is uncertain due to the evolving GATT agreement. Furthermore, dairy farming in Mauritius is largely done by women, and provides this group a valuable source of income.

Reproductive problems

The main problems of the reproductive performance of dairy cattle in Mauritius are long calving intervals (14 $\pm$ 2 months) and a low conception rate (average 30-35%). Beside this the dairy cattle population has decreased drastically in the past ten years, from 25,000 head of cattle to 15,000 head now. It was hard to diagnose the causes for this decrease due to several interacting factors. It is in this context that the joint FAO/IAEA division of nuclear

techniques in food and agriculture funded a project to identify the possible constraints to optimum reproductive performance. The project started in August 1994 and ended in December 1995. Project details are described in EQUATOR, volume 6, no. 3 of May 1994.

Multi disciplinary approach

The project contributed to the improvement of the infrastructure and the development of the research capacity by providing equipment and reagents, fellowships for training of scientific staff and visits by consultants in the field of reproduction. In the project the activities of the organizations that provide services to the livestock producers were combined. This multidisciplinary approach was a success. The co-operation between extension agents, a veterinarian and a researcher created an atmosphere of mutual confidence and trust among the farmers who have willingly collaborated by providing relevant information and milk samples to determine the progesterone level.

One of the outcomes of the undertaken study is a better understanding of the local system of milk production. This may lead to better strategies for solving the problems in dairy farming. For example: local small scale dairy farmers believe that a cow should not be mated or inseminated before three months after calving. This perception will be taken into consideration in the development of strategies to reduce calving intervals.

Results

Data were collected from 150 cows during this study. One of the striking outcomes was that 90 percent of the cows showed late resumption of ovarian activity. The interval between calving and the beginning of ovarian activity varied from 30 to 180 days.

The study also revealed that heat detection is not a major problem. So, the conclusions might be that the period between heat detection and insemination is too long and/or that semen quality is suboptimal, leading to repeated insemination and a low conception rate. With these outcomes in mind 2 intervention strategies are planned. The first strategy is to stimulate an earlier resumption of ovarian activity by improving the pre- and postcalving nutrition of dairy cows through supplementation, while the second is to reduce the interval between the call for AI and the actual insemination and to investigate semen quality.

When the on-farm tests are positive, the results of this study can be disseminated to the farmers' community.

Acknowledgement

The author wishes to express his gratitude to the International Atomic Energy Agency for its financial assistance and technical backstopping which made this project a success

K. Boodhoo

MONITORING TSETSE AND TRYPANOSOMOSIS CONTROL PROGRAMMES IN AFRICA

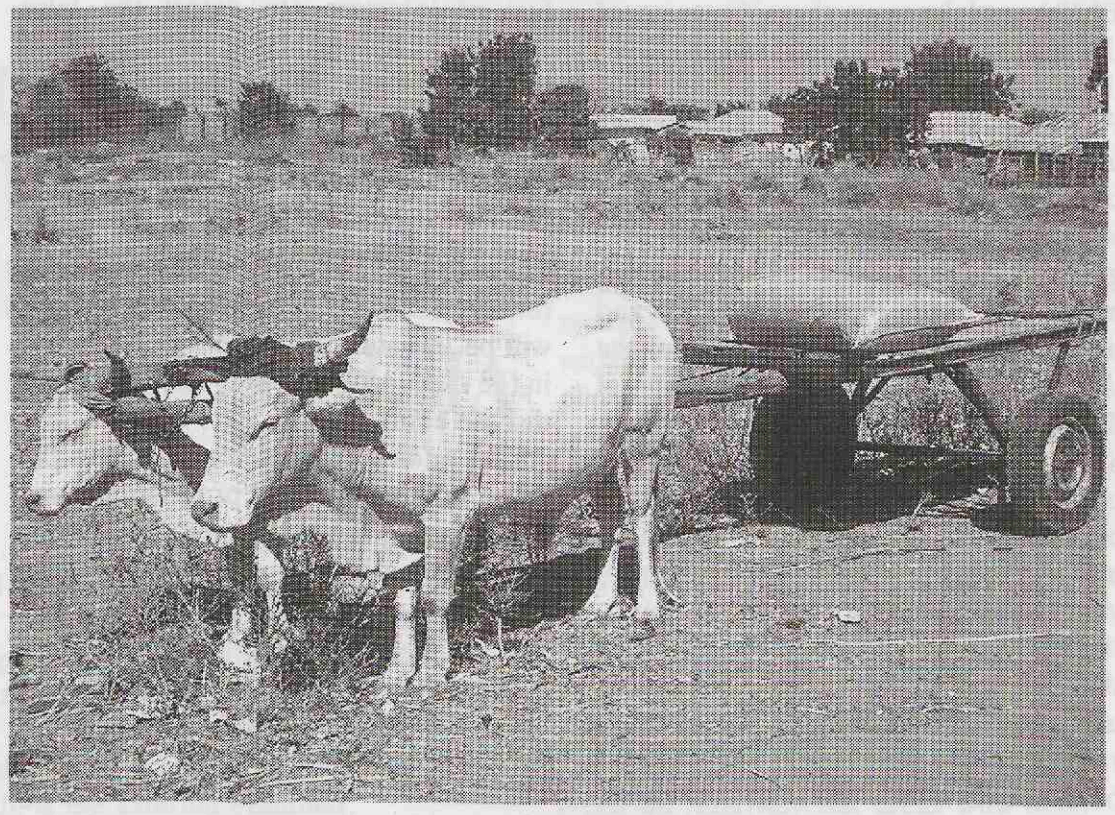
A VETERINARIAN WORKING FOR THE INTERNATIONAL ATOMIC ENERGY AGENCY

The first question people ask me when I tell them where I work, is invariably "what does a veterinarian do in the International Atomic Energy Agency (IAEA)?" The answer is that a number of nuclear techniques are extensively used in veterinary medicine. For example radioimmunoassays (RIA) use radioactive isotopes to measure progesterone levels in cows, giving an indication whether the cow is pregnant, in oestrus, has a regular cycle or has abnormalities of the ovaries. Consequently, the Animal Production and Health Section has a programme assisting third world countries in South America, Asia and Africa in the use of RIA technology. Similarly, the Section has a programme to initiate supplementation of domestic ruminants using locally available feed resources, to increase peri-urban dairy production and to improve the capabilities of institutes in Africa to diagnose various important animal diseases. Since all activities are related to livestock production, the Section forms part of the the Joint FAO/IAEA Division and as such of the Food and Agriculture Organisation (FAO) of the United Nations (UN). The Division has a mandate to promote the use of nuclear and related techniques in food and agriculture. Working for an international organisation such as the IAEA means travelling frequently to assist counterparts with research or technical issues, to attend meetings and conferences or to organise training courses. It also means working in a multicultural environment and performing a lot of paperwork.

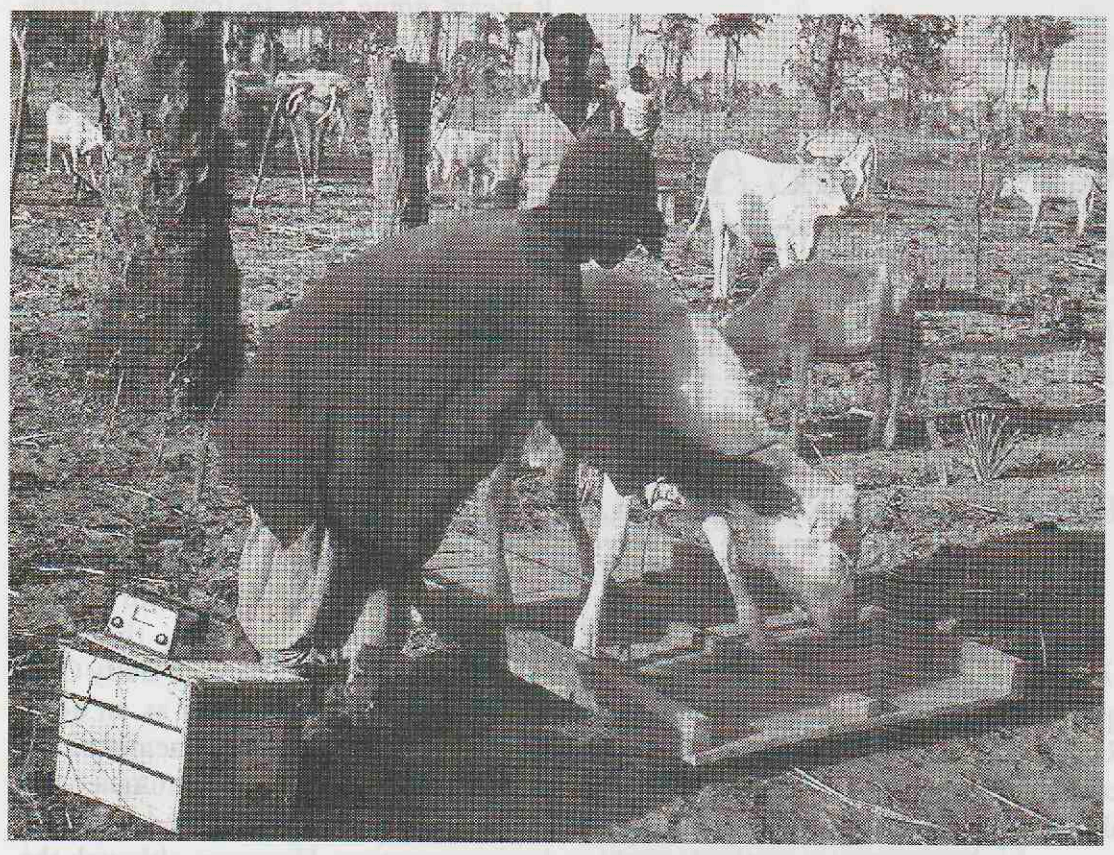
Last year I was waiting in the departure lounge in the airport of Harare, Zimbabwe, ready to board a Cameroon Airlines flight going to Yaoundé. I used my boarding card as a notepad to write down some topics for a talk I was expected to give explaining my work to a mixed audience of African scientists, policymakers and veterinarians. When the airplane arrived on the tarmac of Harare airport, it soon became clear that the 16 passengers waiting to board the flight were not allowed to proceed, because the airplane was completely full. Apparently, the national soccer team of Cameroon had been sent home after losing their qualifying match in the African Games against South Africa. The team had boarded the flight at the starting point in Johannesburg and, consequently, had pushed us off the passenger list. Having a confirmed air-ticket and having cleared Zimbabwe customs did not change our predicament. It meant going back to town, rescheduling flight routes and a travelling delay which amounted in the end to five days before reaching Yaoundé. During the delay I had plenty of time to finish the lecture on my laptop computer:

"Traditionally trypanosomosis in animals has been diagnosed by laborious microscopic examination of individual blood samples, initially thin and thick Giemsa stained smears, later wet films. Concentration methods were developed in the seventies using a haematocrit centrifuge. As a result the diagnosis of the disease was improved and more animals were detected to be infected with trypanosomes. These techniques, the Woo method and the Darkground/Buffy Coat Technique (DG/BCT), had as an additional advantage that the anaemia of the animal could be assessed simultaneously by measuring the Packed Red Cell Volume percentage. However, although the specificity of the techniques was good (very few false positives were encountered), the sensitivity was insufficient. The lower detection limit of the most sensitive technique (the DG/BCT) was reported to be between 100 and 1000 trypanosomes/ml blood. This proved to be insufficient, since trypanosomosis in cattle is often encountered under field conditions as a chronic disease with low levels of circulating parasites in the blood.

The discovery of monoclonal antibodies and the use of enzyme-linked immunosorbent assay (ELISA) technology provided an additional diagnostic tool for testing large numbers of samples with a



Draught oxen, being an important asset to the small farmer are used for ploughing and transportation (Photo: Dwinger).



Regular weighing of eartagged animals gives an indication of growth performance. Here a calf is being weighed using electronic weighbeams, a wooden platform and a car battery (Photo: Dwinger).

reasonable accuracy of detecting infected animals. Monoclonal antibodies directed at epitopes of *Trypanosoma brucei*, *T. congolense* and *T. vivax* were used to capture and detect trypanosomal antigens in bovine blood samples using an ELISA developed at the International Laboratory for Research on Animal Diseases (ILRAD). The assay has been transformed in a ready-to-use kit form by the Joint FAO/IAEA Division for distribution among 15 African research institutes (Figure 1).

Following a validation period under field conditions, minor adjustments were incorporated in the protocol to increase the sensitivity and specificity of the ELISA and improve the robustness of the test for use under laboratory conditions in Africa.

Presently the Antigen detection ELISA is being applied in conjunction with conventional parasitological techniques such as the DG/BCT to monitor progress in various tsetse and trypanosomosis control programmes in Africa and in a tsetse eradication effort on the island of Zanzibar, United Republic of Tanzania.

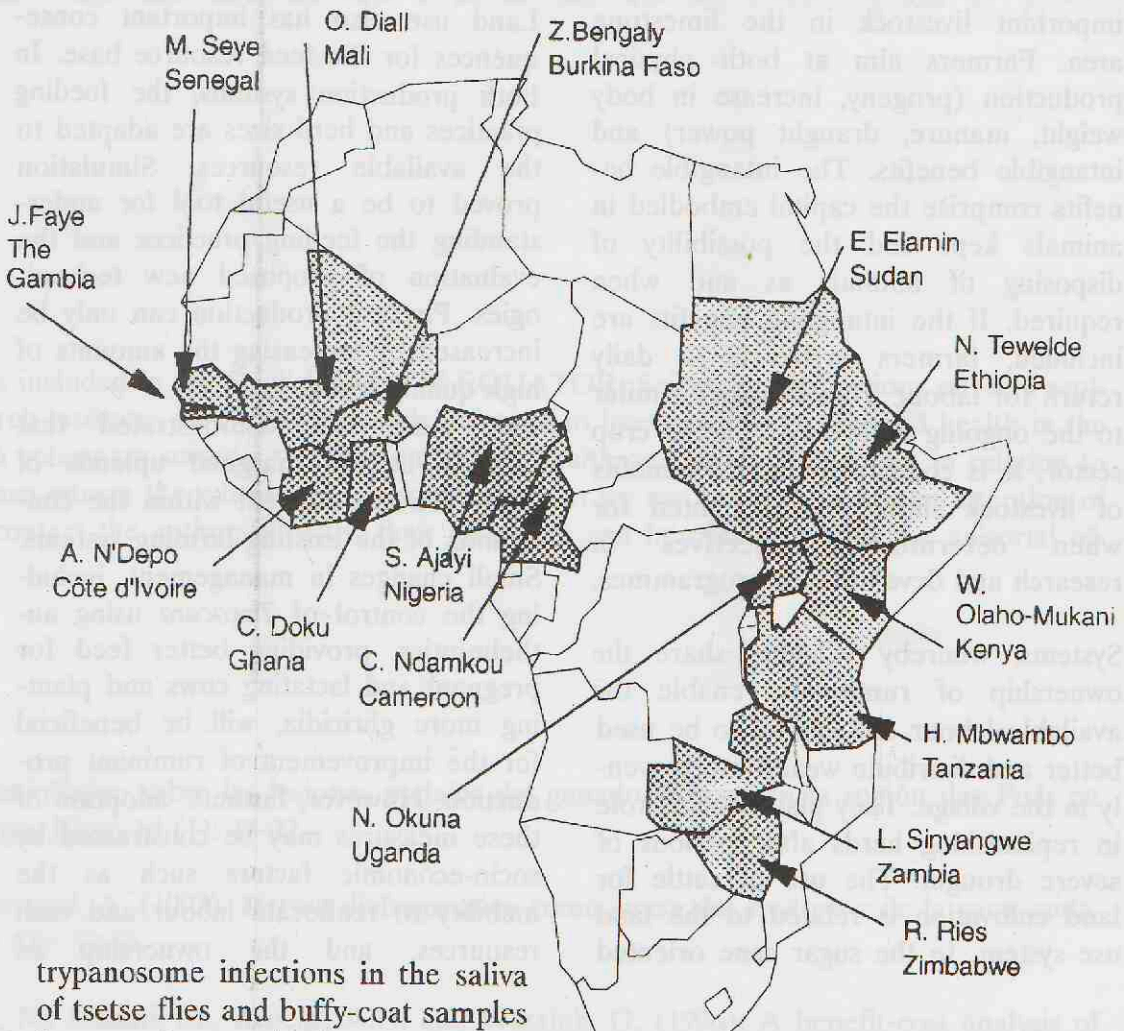
Since the specificity of the ELISA is excellent, it is intended to focus research efforts at the FAO/IAEA Agriculture and Biotechnology Laboratory at improving the sensitivity of the test. However, these efforts are severely hampered by the lack of a diagnostic test that can be used as a "gold standard". The Polymerase Chain Reaction (PCR) is known to be a very sensitive test, but will detect false positives if insufficient controls are being used during the sampling and testing procedures. For trypanosomosis in particular this test would be ideally suited as the "gold standard". It would have to verify doubtful samples, which have been detected positive by ELISA, but have not been found positive parasitologically in order to distinguish the true from the false positives. At the same time the PCR technique might be used to detect infected animals that have tested negative in the ELISA and DG/BCT due to insufficient sensitivity of these latter two tests. The practical significance of the PCR would be that in disease eradication programmes it is of great importance to detect remaining foci of infection (to detect the false negatives). It would be equally important to unmask the false positives, which would assist in giving an indication when to stop eradication efforts. In collaboration with the University of Glasgow, United Kingdom, and the International Livestock Research Institute (ILRI, formerly ILRAD), Kenya, investigations will be initiated to incorporate the PCR in the diagnostic methods for monitoring disease control.

As an additional tool for assessing the effect of tsetse control programmes and for analysing the geographical and environmental implications of these interventions, we intend to use computerized systems such as Geographical Information Systems (GIS). GIS will allow the input, storage, manipulation, analysis and display of geographically referenced data. Data sets of importance for assessing tsetse and trypanosomosis control programmes should contain information on climate, vegetation, geographical features (such as altitude, soils), human, animal and vector populations and socio-economic influences. Thus, one can assess the effects of disease interventions on land use, animal distribution or the environment. Moreover, GIS can be used to map disease distribution when geographically referenced disease prevalence data are available. Similarly, the influence and dynamics of changes in disease incidence can be predicted and disease risk maps can be produced for various geographical sites".

When reading the lecture some days later at another airport somewhere in Africa waiting for a delayed flight, I noticed that various parts of the talk were not clear and needed further explanation. I should add some background information on the Animal Production and Health Section I work in, which is part of the Joint FAO/IAEA Division. The Division consists of six sections dealing with the use of nuclear techniques in agriculture, such as using radiaation to increase plant yields, preserve food products and analyse agrochemicals. Another Section deals with the use of insects sterilised by radiation as a way of biologically controlling insect pests (such as the fruit fly and the tsetse fly). Yet another Section within the Division is dealing with soils for example by investigating the decontamination and use of land following the disastrous accident at the nuclear power plant in Chernobyl in the Ukraine. Since all activities aim at optimising productivity of indigenous animal production systems it is logical that the two UN organisations (FAO and IAEA) implement the projects in close collaboration through the Joint FAO/IAEA Division.

Another omission in the talk was that it failed to clarify the position of the FAO-/IAEA Agriculture and Biotechnology Laboratory. The part of the laboratory which is involved in applied research in support of the overall programme of the Animal Production and Health Section, is the the Animal Production Unit. Furthermore, the Unit is in charge of developing, standardising and distributing the

Figure 1: FAO/IAEA Coordinated Research Programme to improve the diagnosis and control of animal trypanosomosis in Africa through the use of immunoassay methods. The various Research Contract holders are indicated by family name and country of origin.



immunoassay kits used to monitor animal production parameters and diagnose animal diseases all over the world.
After making the corrections to the text I felt at ease and ready to deliver the talk. Let's just hope the overhead projector does not break down and there will be no electricity cuts in the lecture hall...

R.H. Dwinger

(For further information please contact the author at: Animal Production and Health Section, Joint FAO/IAEA Division, International Atomic Energy Agency (IAEA), P.O. Box 100, A-1400 Vienna, Austria)

References for further reading

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Luckins, A.G. (1992). Methods for diagnosis of trypanosomiasis in livestock. World Animal Review, **70-71**: 15-20.

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RELEVANCE OF RUMINANTS IN UPLAND MIXED-FARMING SYSTEMS IN EAST-JAVA, INDONESIA

On Monday, 9 September, 1996, at 16.00 h. Mr. Ifar Subagiyo will defend his PhD thesis 'Relevance of ruminants in upland mixed-farming systems in East Java, Indonesia'. The defence takes place in the university auditorium (Aula) of Wageningen Agricultural University at Wageningen, The Netherlands. Mr. Ifar is a staff member of the Faculty of Animal Husbandry of the Brawijaya University in Malang, Indonesia. His promotor is Prof. Dr. D. Zwart and the co-promotor is Dr. H.M.J. Udo. Prof. Dr I.M. Nitis, professor in animal nutrition and tropical forage science at Udayana University in Bali, is the external examiner.

In Indonesia, upland agriculture is associated with resource-poor farmers, land degradation and low agricultural production. A marginal limestone area in the uplands of East Java, was chosen to carry out a study on the relevance of ruminants for upland mixed farming systems. The data collection was done within the framework of an interdisciplinary agricultural research training project in Farming Systems Analysis, executed by the Brawijaya University, Malang, Indonesia and Wageningen Agricultural University and Leiden University of The Netherlands.
Two villages were selected as research sites because of the differences in land use and soil characteristics. In one village, land use is dominated by the cultivation of sugar cane and annual crops on relatively flat areas with deep

soils. In the other village, agroforestry is becoming increasingly important in areas with steep slopes and shallow, stony soils. Cattle are by far the most important livestock in the limestone area. Farmers aim at both physical production (progeny, increase in body weight, manure, draught power) and intangible benefits. The intangible benefits comprise the capital embodied in animals kept and the possibility of disposing of animals as and when required. If the intangible benefits are included, farmers arrive at a daily return for labour from livestock similar to the ongoing daily wages in the crop sector. It is concluded that all benefits of livestock should be accounted for when determining objectives in research and development programmes.

Systems, whereby villagers share the ownership of ruminants, enable the available labour and capital to be used better and distribute wealth more evenly in the village. They play a major role in replenishing herds after periods of severe drought. The use of cattle for land cultivation is related to the land use system. In the sugar cane oriented system, cattle were mainly used to cultivate the better quality land, whereas in the agroforestry system cattle were hardly used for land cultivation. Land use also has important consequences for the feed resource base. In both production systems, the feeding practices and herd sizes are adapted to the available resources. Simulation proved to be a useful tool for understanding the feeding practices and the evaluation of proposed new technologies. Physical production can only be increased by increasing the amounts of high quality feeds.

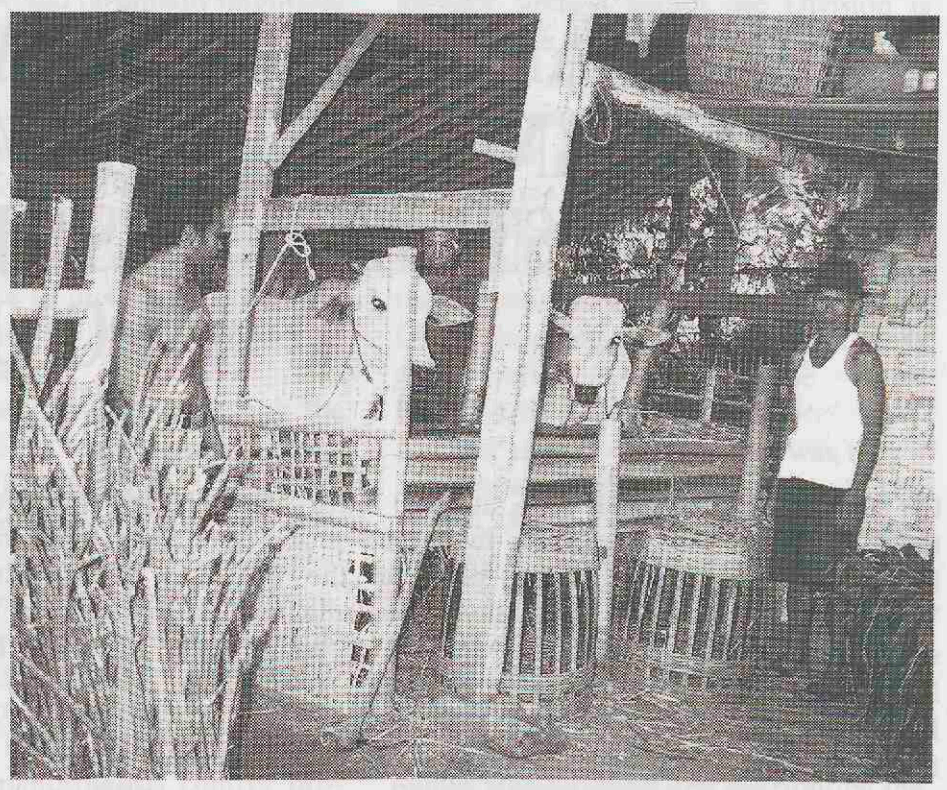
This study has demonstrated that farmers in the marginal uplands of East Java are efficient within the constraints of the existing farming systems. Small changes in management, including the control of *Toxocara* using anthelmintics, providing better feed for pregnant and lactating cows and planting more gliricidia, will be beneficial for the improvement of ruminant production. However, farmers' adoption of these measures may be constrained by socio-economic factors such as the inability to reallocate labour and cash resources, and the ownership of resources and products.

Complex innovations and dramatic changes, e.g. introduction of dairy cattle or cattle fattening schemes, would be difficult because of the limited physical and economic resource base. The interdisciplinary research approach has given insight into the versatility of livestock in supporting the well being of farming households.

Ifar Subagiyo

Prof. Dr. D. Zwart and his PhD student (Photo: collection Zwart)

Farmers in the marginal uplands of East Java produce efficiently within the constraints of the existing farming systems (Photo: collection Zwart)



RECENT PUBLICATIONS (20)

The section RECENT PUBLICATIONS is included in the English issues of EQUATOR. Scientific publications of the Faculty of Veterinary Medicine and other research institutes in The Netherlands, relevant to livestock production and health in the tropics as well as titles of papers by Dutch veterinary scientist working on animal health and production topics in relation to developing countries, will be included. Please inform the editor of your publications so we can bring them to the attention of the readers of EQUATOR. For reprints contact the authors directly, their addresses can be obtained from the editorial office.

ANIMAL HEALTH

Dwinger, R.H. *et al.* (1992). Estudio epidemiológico sobre las lesiones podales del ganado lechero en la región des Poás en Costa Rica. Ciencias Veterinarias (Costa Rica) 14 (1): 13-22.

Keverling-Buisman, A., Cedeno, H. and Berrocal, A. (1993). Hernia diafragmatica como causa del sindrome de la vaca caida. Ciencias Veterinarias (Costa Rica) 15 (2): 33-36.

Schreuder, B.E.C., Moll, H.A.J., Noorman, N., Halimi, M., Kroese, A.H. and Wassink, G. (1996). A benefit-cost analysis of veterinary interventions in Afghanistan based on a livestock mortality study. Preventive Veterinary Medicine 26: 303-314.

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ANIMAL PRODUCTION

Baaijen, M. and Perez, E. (1995). Information technology in the Costa Rican dairy sector: a key instrument in extension and on-farm research. Agriculture and Human Values 12: 45-51.

Graaf, T. de and Dwinger, R.H. (1996). Estimation of milk production losses due to sub-clinical mastitis in dairy cattle in Costa Rica. Preventive Veterinary Medicine 26: 215-222.

TICK-BORNE DISEASES, THEIR AGENTS AND VECTORS

Camus, E., Barré, N., Martinez, D. and Uilenberg, G. (1996). Heartwater (Cowdriosis): a review. 2nd edition. OIE, Paris, pp. 177 (ISBN 92-9044-376-6).

Hermans, P, Dwinger, R.H., Buening, G.M. and Herrero, M.V. (1994). Seasonal incidence and hemoparasite infection rates of Ixodid ticks (Acari: Ixodidae) detached from cattle in Costa Rica. Revista de Biologia Tropica 42: 623-632.

TRYPANOSOMIASIS

Dam, J.T.P. van, Schrama, J.W., Hel, W. van der, Verstegen, M.W.A. and Zwart, D. (1996). Heat production, body temperature, and body posture in West African Dwarf goats infected with *Trypanosoma vivax*. Veterinary Quarterly 18: 55-59.

CALENDAR 1996-1997

Utrecht, The Netherlands
3 September, 1996 - 28 February, 1998
International Master Course "Veterinary Epidemiology and Herd Health". Organized by: Department of Herd Health and Reproduction of the Faculty of Veterinary Medicine. Programme: The Master of Science course offers an introduction to the application of epidemiological methods specifically applied to the field of population oriented studies in animals. Course fee: Dfl. 15,000,- . Closing date for registration 1 July, 1996. Information and registration: Office for International Cooperation, Faculty of Veterinary Medicine, P.O. Box 80.163, 3508 TD Utrecht (Tel.: +31.30.2532116, telefax: +31.30.253-1815, e-mail: bic@bic.dgk.ruu.nl).

Wageningen, The Netherlands
September, 1996 - March, 1998
MSc Animal Science and MSc Aquaculture Programmes. These courses are designed to impart advanced knowledge, modern approaches in scientific research, analytical skills and critical attitudes, to enable graduates to develop animal production or aquaculture in their own countries. Information: Office for Foreign Students, Wageningen Agricultural University, P.O. Box 453, 6700 AL Wageningen.

Liverpool, United Kingdom
September, 1996 - August, 1997
Master of Science Course in Veterinary Parasitology. Organized by: Liverpool School of Tropical Medicine. The course is composed of 3 terms: Formal tuition covering all major groups of parasites and their vectors; Some of the most important veterinary parasites are selected and studied in depth; Personal research project. Information: The joint Masters Course Secretary, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool L3 5QA (Tel.: +44.151.-7089393, telefax: +44.151.7088733, e-mail: williadj@liverpool.ac.uk).

Changchun, PR China
12 - 14 September, 1996
2nd International Seminar on non tsetse-transmitted animal trypanosomiasis (with the participation of the OIE). Information: M. le Docteur L. Touatier, 228, bd du Président Wilson, 33000 Bordeaux, France.

Utrecht, The Netherlands
27 September, 1996
7th International symposium: Tropical Animal Health and Production. Theme: 'Urbanisation: Veterinary public health consequences'. Organized by the Committee for the Advancement of Tropical veterinary Science (CATS) and the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University (for details see EQUATOR 1996 no. 3). Registration before 6 September, 1996 to Office for International Cooperation, Faculty of Veterinary Medicine. P.O. Box 80.163, 3508 TD Utrecht (Telefax: +31.30.2531815, e-mail: bic@bic.dgk.ruu.nl).

London, United Kingdom
October, 1996 - October, 1997
MSc Course on Wild Animal Health. MSc course for graduates in veterinary and relevant sciences. Including: practical and theoretical instruction in the husbandry and nutrition of wild animals, taxonomy, population biology, conservation genetics, welfare and ethical aspects, epidemiology, immunology, infectious and non-infectious diseases, disease investigation, restraint, preventive medicine and surgery and an individual research project. Organized by: The Institute of Zoology (Zoological Society of London) and The Royal Veterinary College (University of London). Information and registration: Registrar, The Royal Veterinary College, Royal College Street, London NW1 OTU (Tel.+ 44.171.4685000, telefax: +44-.171.3882342).

Vienna, Austria
21 October - 15 November, 1996.
International Training Course on the Use of Molecular Techniques (PCR, DNA Probes) for the Diagnosis and Monitoring of the Major Livestock Diseases. Organized by: International Atomic Energy Agency with the support of the FAO/IAEA Joint Division of Nuclear Techniques in Food and Agriculture. Programme: Introduction of concepts of the use of PCR and DNA probes in animal disease diagnosis and monitoring; Provide practical training in these techniques; Provide training in the set up of a diagnostic PCR laboratory. Location: Seibersdorf near Vienna. Application: On standard IAEA form 'Nomination for training course', through Ministry of Foreign Affairs or UNDP Office to: IAEA, P.O. Box 100, A-1400 Vienna (Telefax: +43.1.20607). Closing date: 19 August,1996. IAEA scholarships are available for participants from developing countries.

Nagasaki, Japan
17 - 22 November, 1996
14th International Congress for Tropical Medicine and Malaria. 'New goals for the 21th century'. Organized by: Science council of Japan, Japanese Society of tropical Medicine and International federation for Tropical Medicine. Information: Dr. Hideyo Itakura, Secretary General 14th ICTM Secretariat, c/o The Institute of Tropical Medicine, Nagasaki University, 1-1 2-4, Sakamoto, Nagasaki, 852 Japan.

Nice, France
12 - 14 January, 1997
International Embryo Transfer Society (I.E.T.S.), Annual meeting 1997. Topics: Regulation of follicular and oocyt maturation; Epidemiology of diseases related to the use of E.T.; Progress with new sources for genetic material in breeding; What determines sex in mammals; Intercellular communication between embryo and recipients. Information and registration: IETS, Annual meeting 1997, UNCEIA, 149 Rue de Bercy, 75595 Paris Cedex 12 (Telefax: +33.1-40045379).

Oenkerk, The Netherlands
13 January - 11 July, 1997
10th International Course on Dairy Husbandry and Milk Processing. Programme: Dairy development, Animal husbandry, Milkprocessing, Teaching and extension, Dairy farm management, Small-scale milk processing. Closing date: 1 October 1996. Information and application: IPC Livestock, Dairy Training Centre Friesland, P.O. Box 85, 9062 ZJ Oenkerk (Tel.: +31.5103.61562, telefax: +31.5103.61628).

Montpellier, France
5 - 9 May, 1997
4th Biennial meeting of the Society for Tropical Veterinary Medicine (STVM-97). Programme: (1) Molecular epidemiology of tropical diseases with subjects: Molecular techniques and diagnosis; Epidemiology; Application of molecular epidemiology to tropical countries; Tropical diseases as a model in molecular epidemiology. (2) Hemoparasitic diseases and their vectors with subjects: Tick biology; Tick pathogen interactions; Integrated control of tick and tick borne diseases; Trypanosomiasis diagnosis and control; Tsetse biology and control. (3) General sessions: Contributed papers on: Tropical veterinary medicine; Disease diagnosis, management and control, etc.. Organization is in collaboration with CIRAD-EMVT. For information: Internet STVM homepage http://forest.bio.ic.ac.uk/STVM. Requests for second announcement before 15 August, 1996 to: Dr. E. Camus, CIRAD, BP 2386, Jarry Cedex 97002, Gouadeloupe (FWI) (Tel.: +590.252490, telefax: +590.-252492, e-mail: camus@cirad.fr).

Bornholm, Denmark
22 - 24 May, 1997
XVIII Symposium of the Scandinavian Society for Parasitology, with a special mini-symposium on Human and Veterinary Tropical Parasitology. Information: Secretariat of Symposium Bornholm, Danish Bilharziasis Laboratory, Jaegersborg Allé 1 D, DK-2929 Charlottenlund (Tel.: +45.39.626168 and telefax; +45.39.626121).

EQUATOR

VOLUME 8, NO. 5

NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

ISSN 0923-3334

EQUATOR is a periodical of the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University.

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Printed by
Elinkwijk b.v.

Editorial Office
Faculty of Veterinary Medicine
Office for International Cooperation
P.O. Box 80.163
3508 TD UTRECHT
The Netherlands
Tel.: +31.30.2532116
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E-mail: bic@bic.dgk.ruu.nl

EQUATOR is published bi-monthly.

Subscription is free of charge. For changes in address and termination of subscription please return the corrected label to the editorial office.

September/October 1996

URBANISATION: VETERINARY PUBLIC HEALTH CONSEQUENCES

Appeal for better contacts between veterinarians and the medical and environmental sector at Utrecht Symposium

On 27 September, 1996, the Faculty of Veterinary Medicine of Utrecht University organized the 7th Symposium on 'Tropical Animal Health and Production'. The theme of this year's symposium was: 'Urbanisation: veterinary public health consequences'. The programme was centred around 4 topics: (1) Veterinary public health, (2) Production and consumption, (3) Living in a healthy environment and (4) Animals as source for disease in humans. After a keynote address by Dr. F.X. Meslin of the Division of Emerging and other Communicable Diseases, Surveillance and Control of the World Health Organization (WHO) in Geneva, ten speakers, two from the Utrecht Faculty of Veterinary Medicine and eight from universities, research institutes or projects in Africa, Europe and the United States were invited to give a presentation. With 80 participants coming from 6 European and 7 African countries as well as from the USA, India and Thailand, the organizers can look back with satisfaction to a well attended and interesting symposium.

Veterinary public health towards 2025

In his opening the chairman of the Organizing Committee, Prof. Dr. F. van Knapen of the Department of Science of Food of Animal Origin, gave the background for the choice of the theme for this years symposium. 'The world is becoming increasingly urbanised. By the year 2025 it is anticipated that 60% of the worlds population will live in urban areas. Population growth in various parts of the world does not always go parallel with adequate living standards, particularly in the huge cities, which in turn leads to movement of people to less expensive peripheral areas. Severe overcrowding, inadequate waste disposal, poor water and air quality, all forms of animal husbandry, free roaring animals and crop growing on small pieces of soil, are all potential public health risks. This symposium will pay attention to the veterinary public health aspects in such areas, ranging from manure disposal, food supply and control of zoonoses'.

WHO-programme 'Healthy cities'

Dr. Meslin of WHO gave more detailed figures on the expected urban population in developing countries. In 2010, 3 billion people of the 7 billion inhabitants of our planet will live in cities in developing counties, with an annual growth rate of 2.5%. He mentioned the programme 'Healthy cities' of WHO, which is aimed at improving living standards in these cities. Sofar veterinary public health is not included in this programme and he expressed his wish that this symposium may help to identify priorities for the component of Veterinary Urban Hygiene of this

WHO-programme.
In most developing countries veterinary authorities were and still are mainly concerned with meat inspection and rabies control. Larger cities create more and more complex problems, requiring more and new activities of the veterinary authorities. Dr. Meslin indicated that 'Veterinarians are well placed to play a key role in this complex of interaction between humans, animals and their environment. However, this can only be successful if there is close collaboration with the health, environmental and other public services'. An Action Plan should involve the following components: Health education of the public and training of staff, intersectoral collaboration, surveillance, legislation, zoonosis prevention and control, dog registration and animal population management. Environmental protection and animal welfare are components that should be given attention when possibilities and means exist.

Meat inspection in Zimbabwe
The development and conditions for meat inspection in Zimbabwe were presented by Dr. W. Chadambura of Veterinary Public Health Office in Chinhoyi. Meat inspection became an integral part of the activities of the Department of Veterinary Services in 1928. In that year in order to comply with the veterinary sanitary requirements of the Belgian Congo (now Zaire) in respect of meat imports from Rhodesia (now Zimbabwe) a proper system of veterinary inspection was organised at the Cold Storage Works in Bulawayo. Prior to that all meat inspection was the responsibility of the Department of Health. Legislation played a significant role in the development of the present high standards in meat inspection and quality control.
Training of inspectors started in 1965 and these obtained the Royal Society of Health certificate (London) in Meat Inspection. Meat inspection regulations were gazetted in 1946 and regularly updated in accordance with new requirements. Zimbabwe was given the approval by the Commission of the European Communities to export beef to member states on 1st October, 1985. This gave a seal of quality to the Veterinary Services in Zimbabwe. Some of the larger abattoirs had face lifts to comply with European requirements.

Legislation
Legal conditions also apply to the registration of slaughterhouses, and requirements are set for their construction and facilities. Slaughterhouses are graded A, B, or C depending on throughput. The A slaughterhouses apply to the requirements for export to the European Union. However, with increased public awareness for hygiene more meat from these slaughterhouses is sold locally. Registered abattoirs in urban areas cater for animals slaughtered for human consumption and approximately 85% of the cattle and pigs slaughtered pass through facilities belonging to the Cold Storage Company and Colcom (a private co-operative). All of these are inspected by Meat Hygiene officials of the Department of Veterinary Services. The permanent attention to produce quality meat for export has resulted in a high level of professionalism in the whole veterinary public health sector in Zimbabwe. Although all seems well organized Dr. Chadambura noted a number of problems. Most of these are concerned with the limitations on government funding for the Department which results in delays in the registration of slaughterhouses in the rural areas and possibilities to undertake campaigns to educate the public in respect of hygiene.

Valorization of animal by-products
Prof. Ir. B. Krol of the Utrecht Department of Science of Food Animal Origin pointed the attention to the fact that even to-day past harvest losses worldwide still amount to 25%. The quantity of animal by-products is, including hides and skins, at least 50% of the life weight of animals. The yield of edible by-products from meat animals ranges from 20 to 30% and is about 5% from chickens. The other part of a carcass consists of meat, fat and bones. Worldwide several billions of meat animals are raised annually, delivering, besides meat, fat and bones, one billion tons of edible by-products. Prof. Krol described two positive examples of safe handling of animal byproducts.
One is the development of safe and modern small rendering plants. In (North) Yemen new slaughterhouses have been constructed and adequate technical facilities installed. In 1991 six

In the urban areas of Tete, Mozambique, pigs are reared freely and human sanitation is poorly developed, causing severe problems such as human cysticercosis and taeniasis (Photo: Harun)

Prof. Z.S. Pawlowski stressed that taeniasis is basically a medical problem (Photo: De Gooijer)

slaughterhouses were in operation. The economical viability of slaughtering is increased by safe rendering of animal by-products and by the superior quality of hides and skins. Both processes were carried out with success in Yemen. A special plant for this purpose was constructed in 1986, close to the largest slaughterhouse in Sana'a. Cookers were used to produce meat-, bone- and blood meal for animal feed. These products were put in plastic bags and used in the small scale dairy industry. Health and production of these animals improved significantly. The whole process of improvement of standards in meat hygiene and the use of the by-products was extensively supported by a public awareness campaign on television.

Question marks were put by the audience at the safety of using animal products in animal feed, having the recent outbreak of BSE in the UK freshly in mind. However, according to the view of the 'meat technologist' Prof. Krol, using local products for local use and strict control on the heating process result in a safe product.

Modern handling of traditional animal casings

The other example of safe handling of animal byproducts, Prof. Krol presented, is the safe and modern handling of traditional animal casings. Since two decades these casings are making progress worldwide. Natural casings have a annual trade value of 4 billion US$. Natural casings are used for centuries as meatdough containers (sausages) and are obtained normally from intestines of cattle, pigs and sheep. They have to be removed carefully after slaughter of the animal and separated from the organs. It has been demonstrated that technical developments improve controlled handling - hygiene and quality - and reduce processing time and labour costs of this product. In close cooperation between various industrial partners and two research institutions, an EU-CRAFT project started to look for a better machinability and the improvement of "pulling" and salting of the casings. Pulling requires well trained craftsmen; may be a part of the complicated "handling" can be overcome by a new technical device combined with the air-pressure knife. These developments shall lead to the improvement of the safety and the quality of natural casings. The result of proper handling gives the products a higher added value and contributes to an increased economical "spin-off" of animal production.

Consumption of non-conventional animals

Dr. V. Kumar of the Department of Veterinary Medicine of the Institute of Tropical Medicine (Antwerp) presented a paper on the additional risks of the consumption of non-conventional animal food. Certain communities use unusual animals as items of food. Consumption of such animals may be hazardous for human health. Dr. Kumar gave a number of examples: hepatic capillariasis, pulmonary paragonimiasis and trichinellosis.

Cricetoma or African giant rats are rodents which are increasingly used as bush meat and as an alternate source of animal protein in human nutrition in various parts of tropical Africa. A recent study in Zaire has shown that 23.3% of the cricetoma, captured from their natural habitat in Bas-Zaire harbour *Capillaria hepatica* infection. They are hunted in their natural habitats and brought to urban markets for supply to the consumers. These animals are killed, dressed and prepared for cooking in house-hold kitchens. This must often lead to contamination of cooking utensils with the eggs of *C. hepatica*, which, once embryonated, are infective for man. The true prevalence of human hepatic capillariasis in most part of Africa is unknown given that an accurate diagnosis, based on liver biopsy or other methods, is seldom carried out and the causes of deaths often remain unidentified.

Human pulmonary paragonimiasis or lung fluke disease shows a focal distribution in West Africa. The disease is caused by trematodes of the genus *Paragonimus*. The infection in humans is acquired through the consumption of certain freshwater crabs which harbour the infective stage metacercariae of the trematode. Human pulmonary paragonimiasis may become a public health threat of considerable magnitude during periods of war or famine when crustaccans in the disease endemic areas are consumed in increasing quantities as a substitute routine food.

Trichinellosis from dog meat

The third zoonosis Dr. Kumar described was trichinellosis. He noted that the use of dog meat for human consumption is common and socially acceptable in certain areas of Asia. Trichinellosis is a well known parasitic zoonosis caused by muscle invasion of the larvae of *Trichinella spiralis*. Humans can be affected with trichinellosis by ingesting dog meat contaminated with the larvae. Studies in Jilin Province, North China, showed that dogs are infected with this parasite. At the same time, in Jilin, there is an increasing demand for dog meat as item of food. Not all the larvae of *T. spiralis* present in the musculature of dogs are killed by the manner in which people prepare dog meat for consumption. This makes the consumers vulnerable and at high risk of acquiring trichinellosis. In fact humans died of trichinellosis in Jilin. Theoretically, disease control could be achieved by using closed facilities for the rearing of

dogs for meat purposes and adequate slaughter houses for dogs.

Tuberculosis as zoonosis

During a Symposium on veterinary public health and zoonosis in tropical areas, tuberculosis cannot be omitted from the programme. Dr. J.H. Bongers of the Institute for Animal Science and Health (ID-DLO) in Lelystad, The Netherlands, highlighted the increasing importance of this disease worldwide. One third of the world population is infected, of which 95% have latent infection. Of these 5% of the infected hosts develops TB within the first 2 years and 5% in remaining life span. Nowadays 95% of all TB cases are detected in developing countries. Here, 40% of the HIV infected patients develop TB within the first 4 months and subsequently 10% per year develops TB for the remaining lifespan. *Mycobacterium bovis* is responsible for tuberculosis in cattle and in many other domestic and wild animals. The disease in humans is indistinguishable from infection with *M. tuberculosis* with regard to pathogenesis, lesions and clinical findings. Humans are infected by animals, especially bovines, but also from other livestock kept for milk and meat production, including goat, deer, buffalo, sheep and camels. The proportion of cases of human disease due to *M. bovis* shows considerable regional variation depending on the presence and extent of disease in the cattle population, the social and economic situation, the standard of food hygiene and the application of preventive measures.
As bovine tuberculosis is still present in most developing countries, a risk exists for zoonosis via milk consumption and through direct contact. Slaughterhouses in urban areas might be considered as an important risk factor for both personnel and direct environment. Especially in regions with a HIV epidemic, the risk for human to human transmission of *M. bovis* becomes reality. Multi drug resistance of *M. bovis* in humans is a major concern.
The increasing demand for milk (pasteurized or non-pasteurized) in developing countries act as an extra risk factor as milk consumption is higher in the "new middleclass" where HIV incidence is high. The development of a milktest for the detection of *M. bovis* infection may in the future replace the role played by meat inspection and intradermal tuberculin tests

Cysticercosis is a medical problem

Prof. Z.S. Pawlowski of the Clinic of Parasitic and Tropical Diseases, University of Medical Sciences, Poznan (Poland) and Dr. P. Schantz of the National Centre for Infectious Diseases of Atlanta (Ga, USA), jointly presented a paper summarizing the recent progress in the control of *Taenia solium* taeniasis/cysticercosis (t/c). In particular, two excellent diagnostic tests have been developed i.e., the *T. solium* specific immunoblot assay for serum antibodies and the *Taenia* spp. coproantigen assay. Better epidemiological baseline data have been collected, especially on the focality of *T. solium* infections. As there are effective drugs available, pilot control programmes have been initiated in Mexico and Ecuador. Moreover, a recombinant protein vaccine against cysticercosis in pigs is almost ready to a practical use. In spite of this one should not forget that humans are the only source of infection and that control should be concentrated on human taeniasis; the disease is a medical problem! Finally *T. solium* infection has been declared potentially eradicable by a recognized international body in 1992 (Task Force for Disease Eradication).

Dr. W. Chadambura presented an overview of the requirements for meat production in Zimbabwe (Photo: De Gooijer)

Need for veterinary-medical cooperation

Prof. Pawlowski indicated that when veterinary and medical services work together, much can be gained if the post-mortem detection of cysts in pigs at the slaughterhouse can be linked to the household where the animal came from. In such a case the whole family should receive treatment. Although significant progress has been made, there are several obstacles to a successful programme such as lack of local awareness of a cysticercosis risk, insufficient veterinary-medical cooperation, effective drugs not available locally, lack of a national control programme and, finally, very slow sanitary and economic development in the actually endemic countries.

Intra-urban livestock

Dr. M.A.S. Harun of the Veterinary Faculty of the Eduardo Mondlane University, Maputo (Mozambique) described the post-civil war livestock situation in the urban and peri-urban areas of Maputo and Tete. Throughout the seventeen years of civil war in Mozambique thousands of traditional farmers sought refuge in urban centres. Animal density here is extremely high and can have damaging effects in these populated areas. Small stock kept by displaced people in urban areas are poultry (chicken and ducks), pigs, goats and rabbits. The slaughter of cattle and pigs is subject to government licensing for health and disease control purposes. However pigs, poultry and goats are generally sold alive and slaughtered at home. In the urban areas of Tete, pigs are reared freely and human sanitation is poorly developed, causing severe problems such as human cysticercosis and taeniasis. Intensive poultry production by smallholders is related to salmonellosis in humans. It was realized that the information available was very fragmented and often not conclusive. However, under the present economic conditions it could not be expected that veterinarians or the public health service would perform such investigations. Surveys don't pay!

Risks of leishmaniasis

Prof. Dr. E.J. Ruitenberg of the Utrecht Faculty of Veterinary Medicine noted in his presentation that in 1995, 88 countries, including many developing countries, were affected by leishmaniasis. The WHO estimated in 1995 that some 12 million people in the world

Dr. F.X. Meslin during his key note address (Photo: De Gooijer)

could be infected and 350 million at risk, of whom some 1,5 to 2 million will be infected each year. The *Leishmania* are transmitted from man to man or more often from a non-human host (e.g. dog, rodent, fox) to man by the bite of dipteran sandflies. Leishmaniases are principally rural diseases. However, infections do occur in peri-urban sites as well, because at places were garbage is left around housing sandflies can breed. But also high humidity of the soil and cracks in constructions provide suitable conditions for breeding. Thus, primitive housing and low standards of hygiene increase the risk of transmission in peri-domestic areas. In the New world leishmaniasis is usually predominant in low-income groups, living in peri-urban compounds, close to the sylvatic cycle. Control strategies depend on in depth knowledge of transmission sites, human behaviour and more specifically on the role of domestic and wild animal reservoir hosts and the possibilities of sandfly control. In the case of domestic dogs, mass screening by serological and clinical examination is used to identify symptomatic or seropositive dogs, followed by antileishmanial treatment.
Until now no vaccine against any form of leishmaniasis has been shown to be effective. Various vaccines against visceral leishmaniasis are being tried in dogs in Europe and these may prove to be an important means of reducing infection in this reservoir host. With financial support from WHO the infection model in the dog is being further evaluated to test the efficacy of candidate vaccines. In conclusion Prof. Ruitenberg noted that urbanization of these primarily rural infection and disease pose an emerging risk.

Urban rabies

Dr. K.K.I.M. de Balogh of the Veterinary Faculty of the Eduardo Mondlane University, Maputo (Mozambique), presented an interesting paper on risks and control measures for rabies in urban areas in southern Africa. The abstract of the paper is included in this issue of EQUATOR. She concluded that urban rabies can be controlled in countries such as Mozambique and Zambia, where people are ready to bring their dogs for vaccinations as long as the population is well informed and the campaigns adequately planned. Short intensive vaccination campaigns that are able to mobilize manpower and resources for brief periods are more cost-effective than the conventional punctual vaccination campaigns extended over longer periods of time. Especially the low-income and peri-urban areas should receive most attention as unrestricted dogs, low vaccination coverage and reduced awareness of the population about rabies expose them to a increased risk of the disease. The limited number of available doses for post exposure treatment demands for rational utilization of these expensive drugs, justifying the organization of rabies vaccination campaigns in dogs.
A good cooperation between veterinary and human health institutions is essential creating a good communication network and sharing resources for rabies control. Clear directives for persons bitten by dogs and the streamlining of a referral system will avoid unnecessary delays. Facilities for the capture and observation of dogs have to be reactivated and the re-introduction of a simple collar with a coloured chip indicating the year of vaccination would enable the easy determination of the vaccination status of a dog for a timely initiation of appropriate treatment to reduce the risks of rabies.

EBOLA virus

The last speaker at the symposium was Dr. F.H.M. Pistoor of the Institute for Virology of the Erasmus University in Rotterdam. This institute is also the WHO Collaborating Centre for Haemorrhagic Fevers and Arboviruses. He presented an overview of the current knowledge about the rather mysterious and frightening disease caused by Ebola viruses. In the seventies several outbreaks of lethal haemorrhagic fever occurred in northern Zaire and southern Sudan, and the filoviruses which caused these outbreaks fell into two distinct biotypes: Sudan and Ebola. From 1976 to 1996 there have been 987 cases in humans recorded in Africa of which 719 died (73%). Overall 4 different Ebola strains were identified from cases in Zaire, Sudan, Gabon, and Ivory Coast. An other filovirus, Marburg virus, was diagnosed in Uganda, Kenya and Zimbabwe. The recent outbreak of haemorrhagic fever caused by Ebola virus, that started in Kikwit, Zaire in 1995, in which about 80% of the clinical cases died, caused great fear that the infection would start spreading globally. There is much international attention for this disease. Research in the tropical areas is concentrated on the search for hosts and vectors e.g. dogs, bats, chimpanzees and small monkeys, insects and even plants. In laboratories the molecular biological studies should lead to diagnostic tests and vaccines.

Conclusions from the symposium

In his closing remarks Dr. Meslin noted some parallels in the presentations of the day. Problems develop and increase significantly under conditions of mass movement, war, draught and famine. Diseases known from rural areas are 'moving' into the peri-urban areas e.g. cysticercosis, leishmaniosis, rabies and bovine tuberculosis. Cities are not homogeneous as they have heterogeneous populations with different

levels of disease risk requiring different approaches. Two aspects are most important in the improvement of veterinary public hygiene. These are: public health education and improvement of infrastructure e.g. slaughterhouses and rendering plants.
Control methods that have been successful in the past in Europe cannot be transferred to developing countries as the disease patterns are different, like for example in neuro-cysticercosis and zoonotic tuberculosis. New techniques that could be of additional value are e.g. a vaccine for bovine tuberculosis, a vaccine for porcine cysticercosis, an oral vaccine against rabies in dogs and products which can be orally administered for the control of reproduction in dogs. Development of improved techniques for hygienic production of meat and meat products and the development of new methods for control, diagnosis, treatment and prevention of disease under urban conditions, are essential for a successful veterinary public health policy in the next 20 years. Dr. Meslin made a specific appeal to the audience for better contacts between veterinarians and the medical and environmental sector. His motto was: 'Keep in touch'.

R.W. Paling

(Readers of EQUATOR who are interested in the details of the presentations can obtain a copy of the 'Abstract Book' on a written request from the editorial office).

URBAN RABIES: RISK AND CONTROL MEASURES IN SOUTHERN-AFRICA[1]

Rabies (from *rabidus* latin. = mad) is a highly fatal nervous disease of humans and all warm blooded vertebrates, caused by a virus (family Rhabdoviridae) which is present in saliva late in infection. The virus is generally transmitted by the bite of a diseased animal, most commonly dogs and other carnivores. In more affluent societies of the industrialised nations, the risk of human beings contracting rabies has minimised, albeit at a high cost. Rabies persists to cause numerous human deaths and unmeasured human anguish and suffering in the less industrialised societies which comprise many developing nations. Global estimates show that about 35.000 persons die from rabies and about 3.5 million receive post-exposure treatment every year.
Almost all the reported death occurring in the developing countries. World wide, more than 90% of all human cases are caused by dogs, even in those areas where wildlife rabies is prominent. In Southern Africa rabies is considered an endemic disease. The first confirmed outbreak in the region was believed to have followed the importation of an infected dog from England in 1892 and occurred in the eastern Cape Province of South Africa. In most countries in Southern Africa, the first rabies cases were reported around the turn of the century with the exception of Lesotho where the first case only appeared in 1982.

Epidemiology of rabies in Southern Africa

The number of human and animal rabies cases reported from 1992-1994 vary among the countries in Southern Africa and different conditions prevail concerning the epidemiology of rabies. Two main patterns can be distinguished: the urban/dog and the rural-/dog-wildlife rabies cycles.
In Zimbabwe most rabies cases are diagnosed in jackals. Dog rabies is suspected to be related to the outbreaks in jackals. Most of the dog cases originate from the communal (rural subsistence farming) areas. In Botswana genetic sequencing of rabies virus has shown the existence of a mongoose and a domestic dog variant. However, most rabies cases are diagnosed in cattle and goats. Domestic ruminants are exposed to three main vectors, the domestic dog, the mongoose and the jackal which can host either virus variant.
In Namibia the socio-geographic situation governs to a large extend the nature of the biological cycle of rabies. As the central northern region consists of mainly commercial farming, the most common victims of rabies transmitted by the black backed jackal (*Canis mesomelas*) are goats, sheep and cattle. In contrast, the far northern densely populated region with mainly agricultural subsistence farming, expcriences a more urban type of rabies cycle where the dog is the main vector and victim. In South Africa most rabies cases are diagnosed in dogs. For the period of 1994/1995 a total of 445 were confirmed in this species. Eighty six (86) percent of these cases originate from the Kwazulu Natal Province. In the other regions of South Africa the jackal and the yellow mongoose (*Cynictis penicillata*) are the most important vectors. The drastic increase of dog rabies cases in the Kwazulu Natal Province in recent years can be partly attributed to drastic changes in socio-economic patterns, movement of people and the unprecedented increase in urban and peri-urban settlements.
Two large outbreaks (1980 and 1984) were linked fairly closely to the process of urbanisation. Many people shifted to the larger cities as a consequence of the drought. At that time the situation was brought under control through mass vaccinations. In recent years, due to political and social unrest, the control of the disease has been hampered. According to Bishop the 20 human deaths in 1990 due to rabies were not perceived to be a real problem in comparison to death by other causes such as violence and motor accidents. The urbanization rates recorded in the Durban area are amongst the highest in the world and people continue to move into the cities, bringing with them their dogs.

[1] Paper presented at the 7th Symposium on 'Tropical Animal Health and Production.Urbanisation: veterinary public health consequences'. Utrecht University, 27 September, 1996. Full text is included in the 'Programme and abstracts' of this symposium pp. 41-47.

Course Announcement

Training Course on Veterinary Epidemiology and Animal Health Management

Organizing institute
The Postgraduate Studies of the Department of Tropical Veterinary Medicine of the Faculty of Veterinary Medicine, Freie Universitaet Berlin, is offering a compact training course in veterinary epidemiology and animal health management, from March to July 1997. The course is conducted in English. The five months course provides specialized training with particular relevance to the conditions in the tropics and subtropics. The course consists of five distinct modules of a duration of 4 weeks each; which can also be elected separately.

Programme
Module 1: March, 1997
Introduction to Computer Use and Orientation to Statistics:
Operating personal computers; word processing; software programmes for data management and statistics, e.g. Excel, d-Base, Statgraphics; introduction to e-mail and the Internet; review of mathematical background knowledge and elementary statistics for non-statisticians. Module I will also include a brief introduction into the complex of animal health and production in the tropics.
Module 2: April, 1997
Epidemiology I and Statistics I:
Principles and concepts of population-oriented descriptive, etiologic and clinical epidemiology; analysis of variance; experimental designs, correlation and regression analysis; non-parametric statistics.
Module 3: May, 1997
Epidemiology II and Statistics II:
Approaches for handling large data sets; epidemiological intelligence: monitoring and surveillance; decision-making and animal health management; modelling; multiple regression; logistic regression; other multivariate models; follow-up studies; life tables; Cox regression; time series analysis.

Module 4: June, 1997
Management Tools I - Herd Health Management in Selected Livestock Production Systems:
Assessment and development trends of livestock systems in developing countries; introduction to herd health concepts and schemes; investigating herd health problems in cattle and other livestock; interrelationships in herd health management.
Module 5: July, 1997
Management Tools II - Project Management in Livestock Development:
Project planning and assessment; livestock and health economics; geo-information management, environmental remote sensing and land use planning, GIS.

Participants
The training course is targeting at German and other European veterinarians with interest in a specialisation within the framework of development cooperation in the tropics and subtropics, and veterinarians from developing countries whose training needs comply with the course contents.

Admission requirements
A recognized degree in veterinary medicine; Dr. med. vet. (or equivalent); at least two years of relevant professional experience; proficiency in English.
Scholarships and course fees:
A limited number of scholarships for German participants is available (DM 1200,- plus family allowance of DM 200,- per month, of which 75 percent are given as a loan). For participants not qualifying for the above scholarship scheme, course fees will be imposed; details available on request. On special request, the modules can also be attended separately, depending on the participants' needs.

Application
Deadline for submission of applications for the full programme under the scholarship scheme is 15 December 1996. The following is required for complete application: Personal history, two recent passport photographs, copies of qualifications (academic certificates), statement on the motivation/-interest/expectations related to the course. For applications and information concerning the Compact Course 1997 as well as the Diploma-Course on Animal Health Management starting March 1998, please contact:
Freie Universitaet Berlin, Weiterbildende Studien Tropenveterinaermedizin, Luisenstrasse 56, D-10117 Berlin, Germany (Tel: +49.30.2093-6063; telefax: +49.30.2093-6349. E-mail: TropVet@city.vetmed.fu-berlin.de).
Information about the Postgraduate Studies in Tropical Veterinary Medicine is also available on Internet: http://www1.Vetmed.fu-berlin.de

VACANCY ANNOUNCEMENT AFGHANISTAN

The Dutch Committee for Afghanistan - Veterinary Programmes is a foundation with headquarters in Lelystad, The Netherlands, with as main aim the provision of basic veterinary services to Afghan livestock owners. Under its responsibility a Veterinary Training and Support Centre (VTSC) has been functioning, originally based in Peshawar, Pakistan. Since its inception eight years ago, the project has trained over three hundred paravets and a number of vaccinators, who are deployed inside Afghanistan within veterinary field units, often under the umbrella of FAO. In the course of 1996, also the training activities have been transfered to locations inside Afghanistan.

Early 1997, we intend to start a new field programme in the Western provincies of the country. For supervising this new phase of the programme, the Board of the Foundation is looking for a:

Project Manager

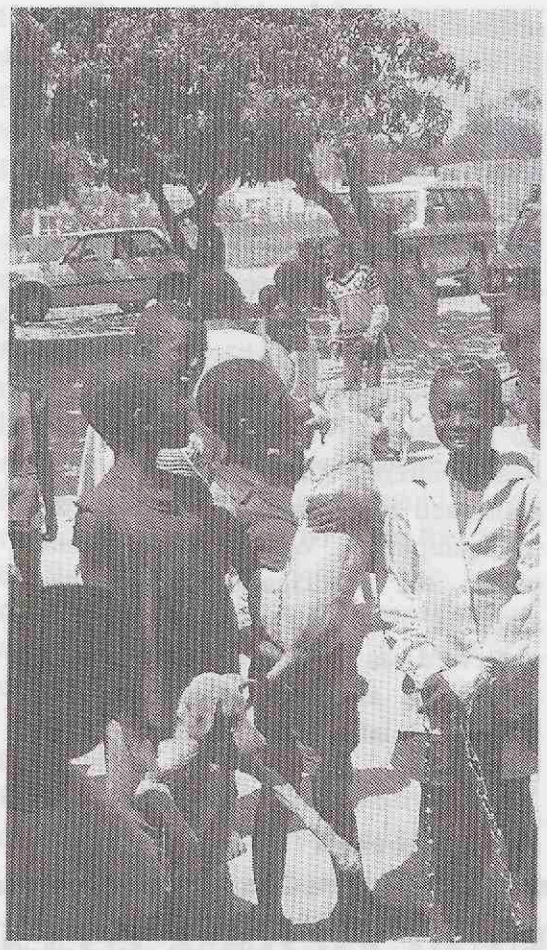
(preferably a graduate in veterinary medecine)

The Project Manager will be, together with the Afghan counterparts, responsible for the ongoing training programme and the implementation of the fieldprogramme. Managerial skills, including some financial management experience, are essential; experience in third world countries and some computer experience, especially database management, is appreciated.

Offered is a contract for one year, with possibility for extension (depending on donor acceptance). Salaries are on NGO-level, in this case approaching Public Service remuneration within The Netherlands. Duty station: Herat.

Applications containing full CV can be submitted to:
Dutch Committee for Afghanistan - Veterinary Programmes
Rozengaard 13-10, 8212 DE Lelystad, The Netherlands.

Further information may be obtained from:
Bram E.C.Schreuder, tel:-31-320-238385 (office) / 248636 (private)
or: Gerrit Wassink, tel: -31-546-573382 (private)



In Lusaka over 9,000 dogs were vaccinated during 2 days in 1992 (Photo: De Balogh)

Rabies situation in Zambia

In Zambia there are still great problems of underreporting of rabies cases as a result of poor infrastructure, insufficient specimen collection, long distances to diagnostic laboratories and poor sample conservation.

Generally, rabies is most prevalent in dogs and most positive cases came from urban areas. The risk of human exposure is associated with canine rabies as dogs are kept at human habitations mainly for security. For the period of 1992-1994, the incidence of human rabies was quite high accounting for 92 human cases out of a total of 231 or 40% of the total confirmed rabies cases. The capital city Lusaka registered 29 cases for the year 1993 only. Also in Mozambique dogs are by far the most important animal species responsible for the transmission of rabies, either between animals, or to man. So far there is no evidence that other animal species play an important role. Most of the dog rabies cases come from urban and peri-urban areas. For the period of 1992-1994 58 human rabies cases were confirmed although only 53 positive animal cases were reported. This clearly indicates an extreme underreporting of animal cases partly due to poor veterinary infrastructure and because dogs manifesting strange behaviour are often killed without samples collected for confirmation. In 1992 there was a significant increase of human cases, as Nampula Province reported 21 cases. During the war, towns became overpopulated with people from rural areas bringing their animals (e.g. chickens, goats and dogs) with them.

Dog bite situation in Lusaka and Maputo

The number of dog bites reported to the main medical centre in Lusaka (population: 1 million) and Maputo (population: 1.5 million), capitals of Zambia and Mozambique respectively, consisted of almost 1000 dog bites per annum/city. In Lusaka the data on human exposure to bites were registered in a poorly kept note book and the absence of specific pre-printed forms reduced the accuracy of the data. In Maputo, the forms did not include a breakdown by sex. The change of the registration format after 1992 hindered some data comparisons. For both cities the group above 20 years appears to be most often bitten. In Lusaka for the year 1992, 40% of the patients with bite wounds reporting to the University Teaching Hospital (UTH) were adult males followed by 26% of male children. Adult women only accounted for 15%. It was suggested that most men are bitten at night on the streets when dogs are most aggressive. Male children often are bitten when playing or teasing dogs. Studies, especially carried out in Latin America show that children account for the largest percentage of human rabies cases. The age group 1-14 is most affected as 26% of bites are inflicted on the head and neck, as compared to only 12% in adults. The incubation period was observed to be shortest in those children bitten in the mentioned areas of the body. No data on age distribution of rabies victims in Zambia and Mozambique could be traced back. In Maputo and Lusaka most people bitten came from the poorer areas of town. It is not clear if persons bitten in the high income areas might seek treatment in one of the few private clinics. In Lusaka, the registration of UTH did not contain any information on the kind of treatment applied but 80% of the dog-bites had been inflicted either by unvaccinated dogs or by dogs of unknown vaccination status. For Maputo, in 1992 and 1993, 20% of persons bitten received rabies post-exposure treatment (P.E.T.). For 1994 no data could be obtained and in 1995 only 43 out of 981 persons bitten or under 5% received P.E.T. It was mentioned that the Ministry of Health had only received 100 courses of P.E.T. for the whole country. Especially in rural areas and in the poorer areas of town persons had less access to specific preventive treatment. The treatment given at the health institution mainly consisted in wound dressing and if available in a course of tetanus injections.

The Maputo study

Three hundred persons were interviewed at the three main market places in 1996 in Maputo. They were asked the area of the city where they lived, type of housing, household size, number of dogs and dog keeping practices. Further questions related to histories of dog-bites and general knowledge about rabies. The effectiveness of different communication media was also assessed. Interviews with persons bitten by dogs indicated that 80% went to a health centre after exposure and most indicated to have received some kind of injection but were not able to tell what kind it was. The general knowledge about rabies was very low. Forty four (44) percent of persons interviewed did not know what rabies was or had erroneous concepts and 34% did not know that rabies was a fatal disease. In several cases rabies was defined as a venom transmitted by a dog bite comparable to a snake bite.

Therefore, the treatment would consist of placing a tourniquet near the lesion. One person claimed to know a traditional healer able to cure rabies and snake bites. Nevertheless 88% of persons interviewed indicated they would go to the hospital or a Health centre after a dog-bite.

From previous informal interviews carried out in Mozambique and Zambia it is interesting to note that in several occasions persons mentioned the placing of burnt hair from the biting dog on the inflicted wound as a way to avoid rabies. No clear explanation for this procedure could be obtained. Simple recommended procedures such as the washing of a bite wound with soap under running water was rarely mentioned.

Dog-ecology data

A dog-ecology study in which 1105 households were interviewed in a high density/low income area in Lusaka the capital of Zambia in 1992, yielded a surprising low dog:human ratio (1:45). Generally an average of 1:10 is estimated for urban areas. In Maputo however this extreme difference could not be observed. The high income areas have a ratio of 1:8 and the poorer areas lay slightly under the 1:14 ratio. In the rural areas studied, the dog:human ratio varied between 1:5 and 1:7 in both countries. The reasons for keeping dogs in the rural areas were mainly for hunting and security and to a lesser extend for animal herding. In Lusaka and Maputo most dogs are kept for security reasons and some only as pets. In the high income areas of Maputo, 50% of the households living in houses and 26% of the respondents living in flats keep dog. Especially the dogs kept in flats have hardly any contact with dogs on the street. In the high income areas in Maputo and Lusaka likewise the houses are surrounded by a wall or iron fence and the dogs are mainly kept inside. Furthermore most of these dogs are regularly taken to one of the few private veterinary clinics in town or to the veterinary faculty for vaccination.

The medium and low income areas 30% of the households keep dogs. Here the risk of rabies is higher due to the increasing number of dogs, the dogs being less restricted and their vaccination status not always well defined. Only 7% of respondents living in reed constructions kept dogs. Half of the respondents without dogs indicated they disliked dogs or never thought of having any, some mentioned the lack of means/suitable housing as a reason for not keeping any dogs. Some mentioned difficulties to acquire a dog. As dog theft is common in Maputo, there does not appear to be an excess of dogs as observed in urban areas in Latin America and Asia. The lower rate of urbanisation in Africa and reduced rate of survival for dogs could have contributed to this.

The dog population of Maputo

In Maputo 45% of the dogs kept were adult males and the adult male:female ratio was almost 2:1. Further the mortality of puppies tend to be very high due to high parasitic infestations and Parvovirosis. Dogs in the poorer areas of town are not restricted and roam around in search of food, nevertheless they tend to have an owner. A straydog is often not tolerated and especially when acting strange might be killed by the local population. On the central waste disposal area in Maputo many dog bites are reported especially as occurring at night when human and dogs scavenge the refuse.

The role of cats and monkeys has so far not been clearly assessed. During a large vaccination campaign in Lusaka where over 9000 dogs were vaccinated during 2 days in 1992, only 2 cats were presented for vaccination. In Maputo it was surprising to see the number of monkeys, mainly vervet monkeys (*Cercopithecus aethiopicos*) kept as pet and regularly brought for vaccination. During the interviews most persons associated dogs with the transmission of rabies and only 2 persons mentioned the role of cats and monkeys as a possible vector.

Rabies control

The goal of mass immunization programmes is to break rabies transmission cycles by immunizing at least 80% of the dogs in each community. At present in Zambia and Mozambique the control of dog rabies is still inadequate. In Lusaka and Maputo a more cost-effective control method was tried out. The conventional campaigns lasting several months, shifting vaccination points to different areas of the city, utilized manpower and vehicles for long periods. A short and intensive vaccination campaign mobilizing resources and concentrating on the medium to low income areas resulted to be more efficient. For punctual activities, the limited budget for rabies control can often be supplemented by donor and charitable organizations. At present the introduction of a cost recovery system for rabies control does not appear to be feasible as rabies being of public health interest the vaccine should be continued to be provided for free during campaigns. With regard to manpower, the participation of veterinary students during these campaigns is perceived as a very useful practical experience and this activity could be integrated into the veterinary curriculum.

Public awareness

In Mozambique the government installed after independence (1975) from Portugal had a very efficient network of information dissemination through the neighbourhood political structure (grupo dinamizador). Persons were informed to bring their dogs and people were used to follow instructions without questioning. Nowadays, the population has to see the purpose to have their dogs vaccinated as punitive measures are not enforced. In view of the low level of knowledge about rabies, the need for an intensive public awareness campaign especially prior to the organization of vaccination campaigns is essential. From the interviews conducted it appeared that television and radio still have a major impact in reaching especially the urban popula-

Most dogs were brought for vaccination by young boys (Photo: De Balogh)

tion. The use of local languages was also emphasized. A vehicle with a megaphone making short announcements about dates and locations is also indispensable. Schools play an important role in creating awareness among schoolchildren. The use of posters appears to have less impact as they are often removed.

As most dogs were brought for vaccination by young boys, campaigns should be conducted during school free periods (holidays or week-end) and preferably in the dry season to avoid heavy rains deterring people to bring the dogs to the vaccination points. The institutionalization of a fixed day each year could further reduce the preparatory costs.

Conclusion

Urban rabies can be controlled in countries such as Mozambique and Zambia where people are ready to bring their dogs for vaccinations as long as the population is well informed and the campaigns adequately planned. Good collaboration between the health authorities and the veterinary services concerning rabies surveillance and control is advisable for prompt action in case of an outbreak. Short intensive vaccination campaigns that are able to mobilize manpower and resources for brief periods are more cost-effective than the conventional punctual vaccination campaigns extended over longer periods of time. Especially the low-income and peri-urban areas should receive most attention as unrestricted dogs, low vaccination coverage and reduced awareness of the population about rabies expose them to an increased risk of the disease. The limited number of P.E.T. demands for its rational utilization. A good cooperation between veterinary and human health institutions is essential creating a good communication network and sharing resources for rabies control. Clear directives for persons bitten by dogs and the streamlining of a referral system will avoid unnecessary delays. Facilities for the capture and observation of dogs have to be reactivated and the re-introduction of a simple collar with a coloured chip indicating the year of vaccination would enable the easy determination of the vaccination status of a dog for a timely initiation of appropriate treatment to reduce the risks of rabies.

K.K.I.M. de Balogh DVM

(Veterinary Faculty, Eduardo Mondlane University, C.P. 257, Maputo, Mozambique)

FOR YOUR INFORMATION 1

NEW BOOK

Parasitic infections of domestic animals: a diagnostic manual

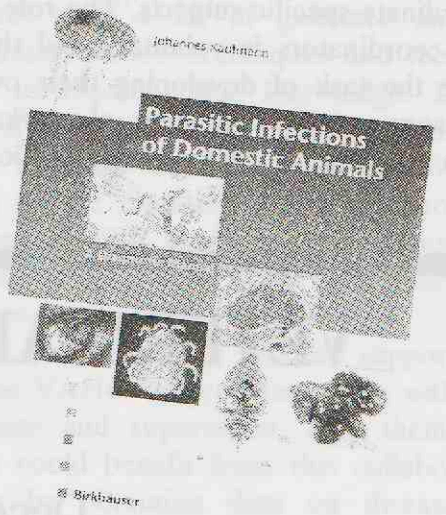
Johannes Kaufmann. 416 pages. 400 colour and 200 b/w illustrations. Hardcover. Prize sFr. 68,-. Basel; Boston; Berlin: Birkhäuser, 1996 ISBN 3-7643-5115-2.

Many textbooks and manuals on parasitic infections are available, often with emphasis on certain species or certain aspects of the diseases, or they refer to specific climatical zones. This comprehensive manual however, is a tool for the identification of cosmopolitan parasites affecting domestic animal species. In this way it is a very useful asset for laboratories which have no access to well furnished libraries. The use of the Standard Nomenclature of Animal Parasitic Diseases (SNOAPAD) taxonomy makes it possible to search for specific literature from other sources when needed. With its large number of colour illustrations one gets a good impression of the major features of the infection, like the clinical picture, pathological and/or histopathological changes and macroscopic and/or microscopic images of the parasites.

The first chapter is concerned with the various diagnostic methods for the examination of faeces, muscle fibre, blood and skin. Immunological methods are described including problems which may arise. Special attention (by guest authors D. Dobbelaere and I. Roditi) is given to the recently developed molecular biological techniques in parasitological diagnosis e.g. DNA probes, PCR and DNA (RAPD)-PCR. Using diagrams and comprehensible language the methodologies can also be well understood by non-specialists.

The subsequent chapters are respectively dealing with parasites of cattle, small ruminants, horses and donkeys, dromedaries, swine and poultry. The manual is easy to consult through its colour-coded layout. For example throughout each of these chapters clearly distinguishable colour markings are used to indicate the stages of the parasites in the faeces, blood, urogenital system and internal organs or on the body surface. Subsequently for each of these locations the parasite groups are systematically listed (protozoa, rickettsiales, helminths and arthropods). Clear diagrams illustrate the life cycle of the parasites.

The manual is an excellent reference source for the description of the parasites and the diagnosis of the infection. The geographic distribution, symptoms and significance for the affected animal



is broadly provided, and the most common therapy and possible prophylactic methods are mentioned. What is missing is adequate information on the relevance of the parasite infections as herd problems and the possible effects on the productivity. However, one should realize that this a diagnostic manual and the bibliography and list of references for further reading directs the reader to more comprehensive literature of the nineteen eighties.

Parasitic infections of domestic animals is good value for money. The price is kept very reasonable due to financial support from the Swiss industry and government. The manual will be of great value for personnel in field laboratories, veterinarians and technicians as well as teachers and students. Meat inspectors and public health officials can certainly make good use of this manual.

R.W. Paling

FOR YOUR INFORMATION 2

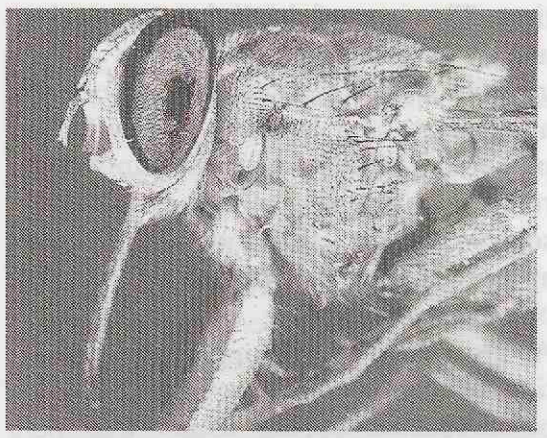
NEWS FROM IAEA

Recently a new international effort 'The programme to clarify and solve the problem of African Trypanosomiasis' was initiated. The Programme Committee consists of executive level technical and policy advisors and representatives of some of the major donor organizations (e.g. IFAD, Worldbank, UNDP and EU) and various bilateral donor agencies. The objective of the programme is to identify priorities and provide overall direction and focus to the investment of human and financial resources.

Coordination at the technical level is through a number of individuals who coordinate specific subjects. The role of the coordinators is voluntary and they have the task of developing their own advisory groups consisting of workers with activities in that particular field.

The coordinators report to the Joint Secretariat through an annual technical meeting where priorities are identified, progress is reported and problems are discussed. The recommendations of this meeting are forwarded to the Programme Committee, which uses them to decide at the executive level on the focus and direction of the programme guiding donors and governments on how investments should be best made to ensure effective disease control in the context of food security and rural development. A Memorandum describing the programme in more detail has been published and a copy can be obtained upon request. The various topics are:

1. Land-use environment
2. Socio-economics
3. Vector management
4. Diagnosis and epidemiology
5. Host management



6. Parasite management
7. Strategies and planning

If you are interested to become part of an advisory (discussion) group you can contact the coordinator. More details about the specific subjects within each of these topics and the names of the responsible coordinator can be obtained from IAEA, P.O. Box 100, A-1400 Vienna (Tel.: +43.1.2060.26054; telefax: +43.1.20607). For the subject 'Disease and epidemiology of animal trypanosomiasis' the coordinator is Dr. R. Dwinger at IAEA (e.mail: dwinger@ripo1.iaea.or.at).

VETERINARY TRAINEESHIP IN THE TROPICS

Decentralized animal health care in Kwimba district, Tanzania

In the spring of 1994 I participated in the course on 'Tropical animal health and husbandry' at the Faculty of Veterinary Medicine of Utrecht University. A logical follow up to this course is a 6 months internship in a tropical country. During this course I decided that South America was the continent I was interested in. At that moment Africa was out of the question for me. But unfortunately the little time remaining to finish my veterinary studies, left me no room for a tropical internship. I thought!

However in spring 1996 I started making preparations for ... a 6 months tropical internship in ... Tanzania; an internship with the Farming Systems Research Programme in the Lake Zone of Tanzania. My job was to give veterinary assistance in the setting up and monitoring of Village Animal Health Groups. A concept whereby farmers are trained to provide basic veterinary care to their cattle.

On the first of December I flew to Kenya. After 2 anxious weeks in Nairobi, sending fax-messages from Nairobi to Mwanza via Utrecht, all official obstacles had been tackled, and a bumpy nine-seater flew me to Mwanza, Tanzania and gave the first view of the magnificent Lake Victoria. Six unforgettable months had started.

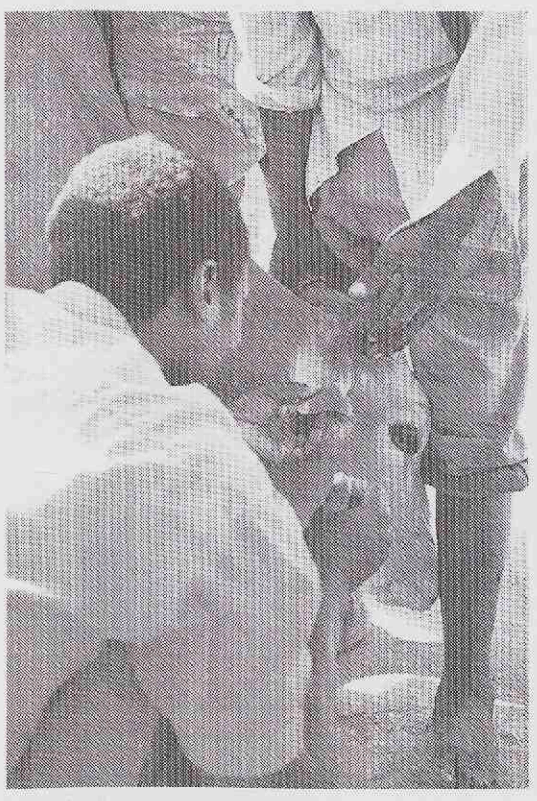
The project

The Lake Zone Farming Systems Research (FSR) Programme is based at the research institute Ukiriguru, Kwimba district, approximately 35 kilometres from Mwanza in northwest Tanzania. The programme is jointly funded by the Tanzanian and Netherlands' government. The programme supports research concerning different farming systems in the Lake Zone. Farmer's input plays a very important role in determining priority areas for research.

The livestock section of this programme conducted a survey in 1994 in order to identify development priorities for livestock production. From this survey it was concluded that one of the priorities was the development of a programme to intensify the use of animal draught power. A programme, with three technical components: farm implements, nutrition of oxen and health care of oxen, was than designed. My study was concerned with the health care of oxen.

Veterinary services

The way the animal health services are structured in Kwimba district, is a major constraint to the provision of animal health care to the village farmers. Veterinarians do not operate at village level. Village Extension Workers are trained to provide veterinary assistance and to pass on basic knowledge on animal health care. How-



Collecting a blood sample from the ear vein at Mwampula, Tanzania (Photo: Erkelens)

ever, due to lack of transportation, equipment and drugs and to insufficient veterinary knowledge, there is little veterinary assistance that actually reaches the farmers.

Decentralized animal health care

Farmers in the district are interested to undertake action in the field of animal health care. However, lack of expertise and guidance has withheld them to undertake action. Veterinary care should be provided at village level. A possible way to achieve this is by decentralizing animal health care through the formation of Village Animal Health Groups (VAHGs). Individuals are trained to provide basic veterinary assistance to farmers in the village. VAHGs intend to complement the existing government veterinary services. Issues like vaccinations will not be handled by the farmers themselves. VAHGs will also remain dependent on government veterinary services for extension messages and for the monitoring of their activities.

The objective

The objective of my study was to test whether VAHGs are a viable and sustainable solution to the inadequate veterinary assistance in the villages in Kwimba district. Through this study the best possible way of setting up and monitoring VAHGs could be determined, which in turn will make extension to other districts in Tanzania possible.

The workplan

The study started with the selection of test villages and control villages. Selection was based, among others, on a good internal organization. In these villages a baseline study was done to assess existing knowledge on animal health and animal health care (modern and traditional), and to determine priority subjects for training. The villages formed groups of farmers interested in these subjects. These farmers contributed money to create a revolving fund, enabling the purchase of medicine and equipment.

In each test village approximately 10 farmers were trained as Village Animal Health Workers. The training was conducted in collaboration with an experienced veterinarian working for the Intermediate Technology Development Group. The training covered subjects such as: general animal health, worm infections (consequences and treatment), tick control and tick borne diseases (diagnosis and treatment). The training tried to focus on the importance of preventive medicine: anthelmintic treatments and tick control.

Aside from financial management and bookkeeping, the farmers were taught to keep detailed records of their activities, treatments and results of treatments. Kits with basic tools and drugs were distributed to these groups.

The groups were closely monitored. Monitoring included subjects as: veterinary competence, finance and drug management, acceptance by village farmers, group and individual functioning. Monitoring was carried out by FSR staff together with village extension workers, district veterinary officers and a veterinarian from the Investigation Centre in Mwanza.

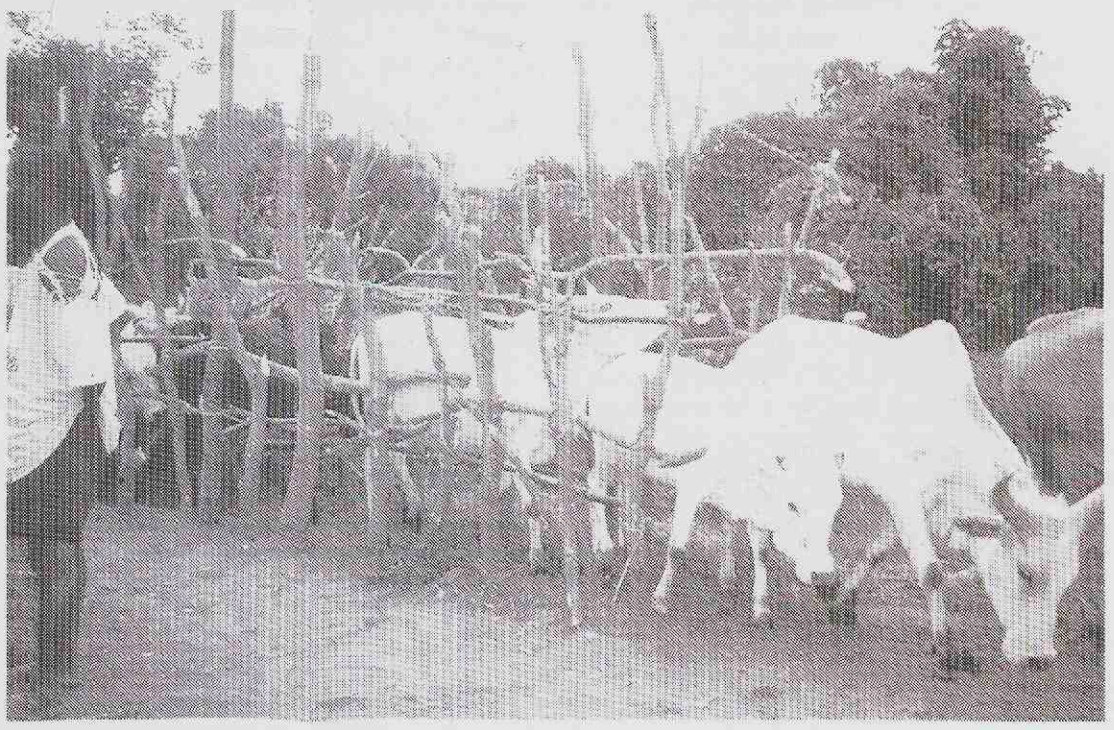
The results

The VAHGs have now been functioning for 5 months in 3 different villages in Kwimba district. Although we are still at an early stage of the study, a few remarks can be made.

The success of a VAHG depends on the internal organization and leadership of the group. Good financial and drug management are difficult, but essential aspects. Especially in the beginning the trainees need a lot of guidance and rehearsing of new techniques and they need to expand their knowledge. In general the trainees are motivated and hard working. Success depends very much on the monitoring and guidance of the VAHGs. Good communication and collaboration with the veterinary services are essential.

Where the veterinary services supported the VAHG by providing them with guidance and supervision, they themselves could benefit from this collaboration by obtaining data on disease incidence.

The provisional conclusion is that the concept of decentralized animal health care is very well received. Farmers appreciate the services very much, and



Cattle crush in Itya, Tanzania (Photo: Erkelens)

are willing to work on improving animal health. Although in the first place this work is concerned with cattle, interest towards treatment of other livestock species is already growing.
It is the lack of knowledge and guidance that has kept people from taking action in the field of animal health. The VAHG has provided them with both.
Treatments of life threatening diseases are most popular. Hopefully in the future the emphasis will shift to preventive medicine, control of helminth and tick borne diseases. The high incidence of these diseases and the substantial economic loss they cause, justify this emphasis.

My conclusion
As I mentioned, these 6 months in

Measuring anthelmintic drug. The tape is used to measure the weight of the animal (Photo: Erkelens)

Tanzania are unforgettable. The type of work, the responsibilities, and the completely different surroundings made quite an impression on me. I believe the most stimulating and rewarding factor was the teamwork with the local farmers. Their motivation, respect and hospitality taught me things that are useful in any country, culture or future job.
Wafugaji, nawapenda!

Janneke Erkelens

CALENDAR 1996-1998

Nagasaki, Japan
17 - 22 November, 1996
14th International Congress for Tropical Medicine and Malaria. 'New goals for the 21th century'. Organized by: Science Council of Japan, Japanese Society of Tropical Medicine and International Federation for Tropical Medicine. Information: Dr. Hideyo Itakura, Secretary General 14th ICTM Secretariat, c/o The Institute of Tropical Medicine, Nagasaki University, 1-1 2-4, Sakamoto, Nagasaki, 852 Japan.

Nice, France
12 - 14 January, 1997
International Embryo Transfer Society (I.E.T.S.), Annual meeting 1997. Topics: Regulation of follicular and oocyte maturation; Epidemiology of diseases related to the use of E.T.; Progress with new sources for genetic material in breeding; What determines sex in mammals; Intercellular communication between embryo and recipients. Information and registration: IETS, Annual meeting 1997, UNCEIA, 149 Rue de Bercy, 75595 Paris Cedex 12 (Telefax: +33.1-40045379).

Berlin, Germany
March - July, 1997
Training Course on Veterinary Epidemiology and Animal Health Management. Organized by: Postgraduate Studies of the Department of Tropical Veterinary Medicine of the Faculty of Veterinary Medicine, Free University Berlin. Programme: see under 'For your information' elsewhere in this EQUATOR. For information and registration: Freie Universitaet Berlin, Weiterbildende Studien Tropenveterinaermedizin, Luisenstrasse 56, D-10117 Berlin (Tel: +49.30.-2093-6063; telefax: +49.30.2093-6349; e-mail: TropVet@city.vetmed.fu-berlin.de).

Vienna, Austria
7 - 11 April, 1997
FAO/IAEA Symposium on 'Diagnosis and control of livestock diseases using nuclear and related techniques', 'Towards disease control in the 21th century'. Organized by: The Animal Production and Health Services of the Joint FAO/IAEA Division. Programme: Serology, molecular biology, epidemiology and socio-economics and their current and future role in diagnosis, control and eradication of the major diseases affecting livestock. Location: VIC, Vienna. Information and registration: IAEA, P.O. Box 100, A-1400 Vienna (Tel.: +43.1.2060.26054; telefax: +43.1.20607;
e.mail: crowther@ripo1.iaea.or.at).

Montpellier, France
5 - 9 May, 1997
4th Biennial meeting of the Society for Tropical Veterinary Medicine (STVM-97). Programme: (1) Molecular epidemiology of tropical diseases with subjects: Molecular techniques and diagnosis; Epidemiology; Application of molecular epidemiology to tropical countries; Tropical diseases as a model in molecular epidemiology. (2) Hemoparasitic diseases and their vectors with subjects: Tick biology; Tick pathogen interactions; Integrated control of tick and tick borne diseases; Trypanosomiasis diagnosis and control; Tsetse biology and control. (3) General sessions: Contributed papers on: Tropical veterinary medicine; Disease diagnosis, management and control, etc. Organization is in collaboration with CIRAD-EMVT. For information: Internet STVM homepage http://forest.bio. ic.ac.uk/STVM. Information: Dr. E. Camus, CIRAD, BP 2386, Jarry Cedex 97002, Gouadeloupe (FWI) (Tel.: +590.252490; telefax: +590.-252492; e-mail: camus@cirad.fr).

Onderstepoort, South Africa
5 - 31 May, 1997
FAO/IAEA Regional training course on: 'The use of enzyme immuno assays in the diagnosis and monitoring of Contagious Bovine Pleuropneumonia'. Training programme: disease diagnosis by ELISA technology; data management; introduction of concepts of the use of PCR and DNA probes in animal disease diagnosis and monitoring; practical training in these techniques. Location: ARC, Onderstepoort Veterinary Institute.
Application for scientists of African countries (IAEA scholarships are available): on standard IAEA form 'Nomination for training course', through Ministry of Foreign Affairs or UNDP Office to: IAEA, P.O. Box 100, A-1400 Vienna (Telefax: +43.1.20607). Closing date: 1 February, 1997.

Bornholm, Denmark
22 - 24 May, 1997
XVIII Symposium of the Scandinavian Society for Parasitology, with a special mini-symposium on Human and Veterinary Tropical Parasitology. Information: Secretariat of Symposium Bornholm, Danish Bilharziasis Laboratory, Jaegersborg Allé 1 D, DK-2929 Charlottenlund (Tel.: +45.39.626168; telefax; +45.39.626121).

Harare, Zimbabwe
14 - 18 September, 1998
First announcement of the IX International Conference of the Association of Institutions of Tropical Veterinary Medicine (AITVM). Organized by: Faculty of Veterinary Science, University of Zimbabwe, P.O. Box MP 167, Harare. Location: International Conference Centre, Harare.

EQUATOR

VOLUME 8, NO.6 NEWSLETTER ON VETERINARY ASPECTS OF INTERNATIONAL DEVELOPMENT COOPERATION

ISSN 0923-3334

EQUATOR is a periodical of the Office for International Cooperation of the Faculty of Veterinary Medicine of Utrecht University.

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Printed by
Elinkwijk b.v.

Editorial Office
Faculty of Veterinary Medicine
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P.O. Box 80.163
3508 TD UTRECHT
The Netherlands
Tel.: +31.30.2532116
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EQUATOR is published bi-monthly.

Subscription is free of charge. For changes in address and termination of subscription please return the corrected label to the editorial office.

November/December 1996

ESTABLISHING A VETERINARY FACULTY IN ZARIA, NIGERIA

This is the second part of an interview with Drs. Henk Kuil, one of the Dutch "pioneers" in tropical veterinary medicine. The first part was published in EQUATOR, volume 8, no 4.

In March 1966, Henk Kuil and his family left the Netherlands again, this time for Nigeria. The project was in Zaria, in the North of Nigeria, near the Sahel region. A Faculty of Veterinary Medicine was to be established at the Ahmadu Bello University, which was named after the then prime minister of North Nigeria. This project was to be executed by the Kansas State University, but the contract stated that Utrecht University would develop the parasitology department. The Dutch part of the project was financed by the Netherlands' Ministry of Foreign Affairs and executed by the Institute for Tropical and Protozoan diseases of Utrecht University's Faculty of Veterinary Medicine.

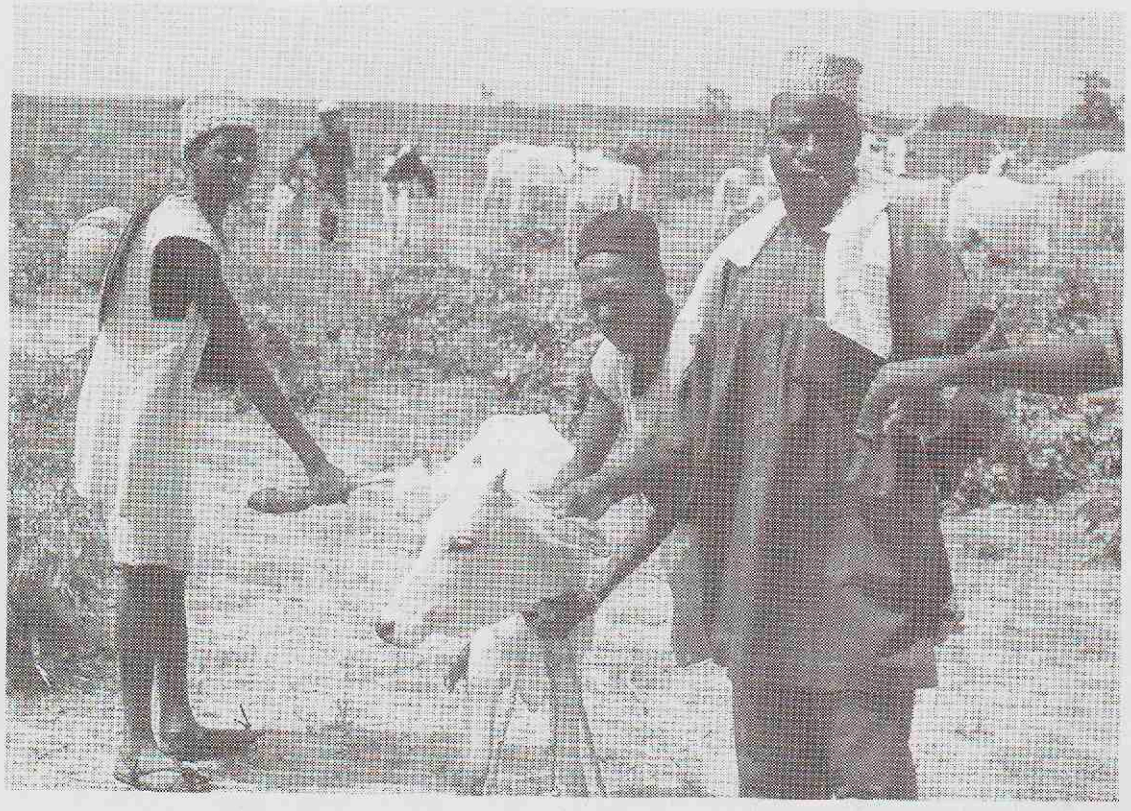
Teaching constraints

"We had the luxury of three scientific staff and two laboratory technicians. It was an advantage that parasitology was important to Nigeria, because the animals suffered from helminths and blood parasites. Therefore we could do research beside the teaching and that proved to be of importance. The Americans were understaffed. They were fully occupied with their teaching programme and had no time to adapt their teaching programme to the local circumstances. For most disciplines this is not a problem, but for instance in internal medicine it is a complicating factor. Through research you can adapt your teaching programme to the local needs and it is important to know what a Nigerian veterinarian needs to know: care for the individual animal or for the herd?

Teaching without students

Prof. Wilson, the head of the Utrecht Institute of Tropical and Protozoan Diseases, had sent me to Zaria to teach helminthology. In Surinam I gained some experience in this field. But of course my experience was limited to the parasites that can be found in Surinam. Now I had to teach helminthology more extensively. Fortunately I had a lot of time to study the subject, because during my first year in Zaria we did not have students.

In the beginning we were with two persons, Dr. C. Folkers and myself. Except for the building there was nothing, so we had to start from scrap. This building was originally designed to be a sports hall and when it was assigned to us it was only a very large room with a zinc roof. Inside this hall we started to construct offices and laboratories. Regarding climate control this was an ideal spot because the hot sun could not reach the walls of our constructions. We did a lot of the carpenting and drilling ourselves and soon we started to collect goats, sheep and cattle to study the parasites these ani-



Taking bloodsamples from a local herd (Photo: collection Kuil)

mals were infected with. I was especially interested in "new" parasites. We could demonstrate a diversity of parasites, of which several were already known to exist in Nigeria. Soon we also visited the local slaughterhouse to investigate organs of the slaughtered animals.

Of course those "new" parasites were not really unknown, but it was the first time these were demonstrated in Nigeria. It was also remarkable that these parasites were widely spread. All the goats we splenectomized had *Babesia* or *Anaplasma*. Beside these parasites we also found *Theileria* in cattle.

The first students

In the mean time we had started with 4 senior students who took two years preliminary theoretical education at the veterinary faculty at Ibadan. They came to us for the clinical training. Those students were Ibo and therefore they had to flee when the violence of the civil war started. We never saw them back. That left us without students again.

In a later period we got more students, 12 and then 20, soon increasing to 50. So, the teaching programme had priority. The programme included clinical teaching as well, but it was a problem to obtain material; we often just went out with the students and looked for a patient.

Time for research

Beside teaching we also developed a research programme, aimed at blood parasites like trypanosomes and *Babesia*. This research was mainly carried out by Van Hoeven and Folkers. I was engaged with helminths in sheep and goats, but mainly in sheep. I got my material from the slaughterhouse and herds in North Nigeria, but I also had my own flock of sheep. I involved the students in the investigations as soon as they were ready for it.

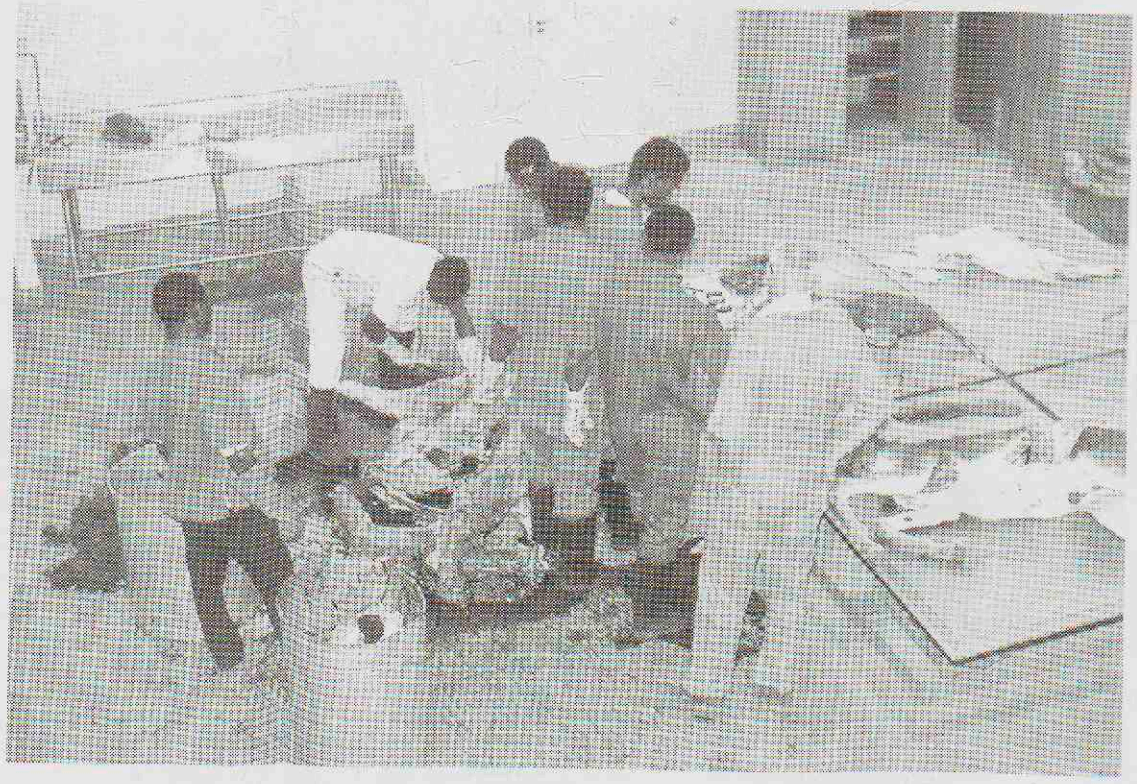
Counterparts

Our third duty was the training of counterparts. That was a problem, because there were no counterparts. So we had to train young staff to become our counterparts. We were also lucky because there was a biologist, Alamu Mohammed, who came to us after one year, to do entomology. He was mainly interested in ticks and not so much in tsetse because a lot of research on tsetse was done in the colonial past in Kaduna at the Tsetse Research Station. Beside rinderpest and pleuropneumonia, a contagious disease of the lungs, trypanosomiasis was the main cattle disease in this region. The entomologist Alamu later became head of the department and subsequently vice chancelor of the Ahmadu Bello University.

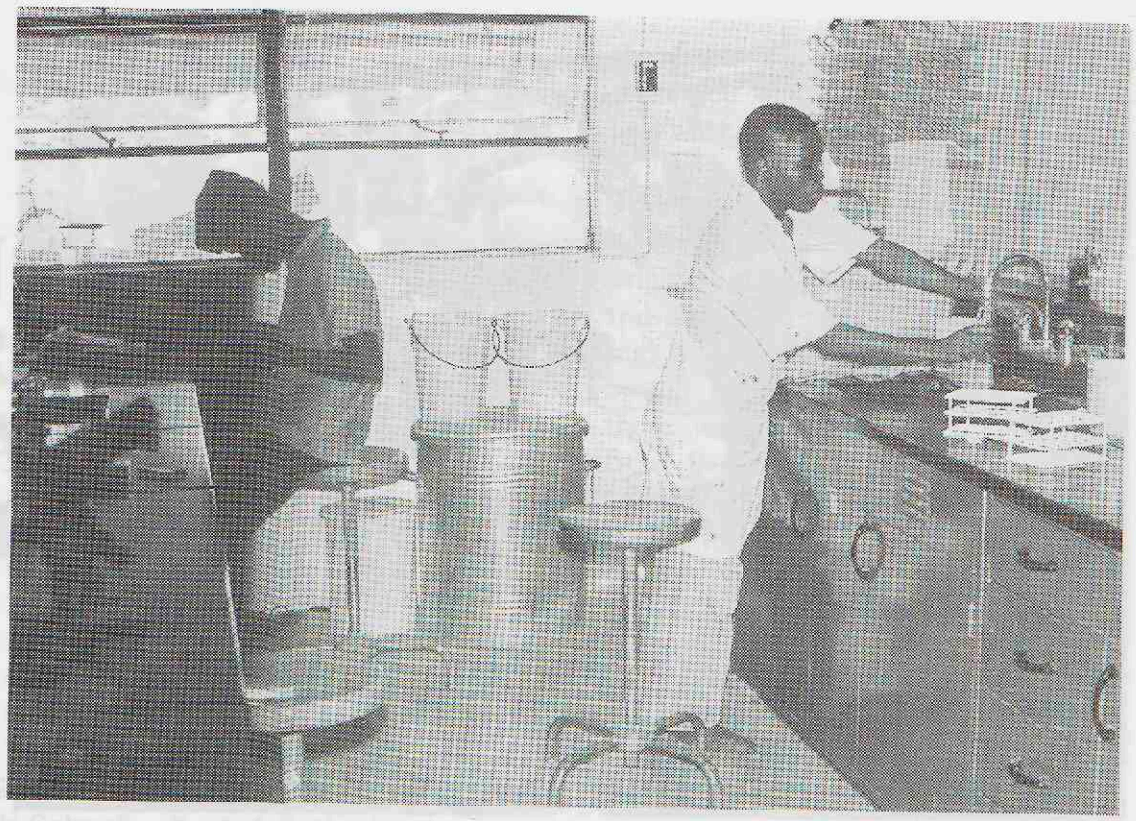
Our second counterpart was one of our students. After his graduation he became engaged in protozoology. Later, he went back to his home area in the south, where he too became a vice chancelor. So, our first two counterparts ended up well. My counterpart arrived at the time I was preparing to leave in 1970. We only shook hands, but my direct successor Tjaard Schillhorn van Veen co-operated with him.

Civil war

We left the Netherlands in March, 1966, and already in May the first troubles between Haussa and Ibo started. In September of that year Ahmadu Bello was assassinated. Of course this caused a great instability. Not only houses were burned down but also massacres occurred. This was the



Post mortem examinations formed a part of the clinical training (Photo: collection Kuil)



The parasitology laboratory in Zaria (Photo: collection Kuil)

reason for the secession of Ibo and surrounding territory and the declaration of indepedence of Biafra. The federal government could not tolerate this and a civil war started. We did not notice much from this civil war except for some riots and roadblocks after every kilometer. The soldiers recognized our cars and we could pass these roadblocks. Of course there came a shortage of certain products. For instance, it was not possible to buy jenever and Gouda cheese anymore, but this was no constraint.

From the colonial period originated a structure of 4 regions. One big northern region and 3 smaller in the south. One of the causes of the Biafra war was the discrepancy between the North and the South. The northern region was much bigger as for area and inhabitants. Within the federation the North always won the elections and that stirred up bad feelings, as the southern region was according to western standards more developed. At the end of the 19th century the British advanced to the north and established a "government" in this region through "indirect rule". The people accepted this under the condition that missionary work and therefore also mission schools were not allowed. The north was muslim country. Therefore there was little western influence, in contradiction to the south where mission schools flourished. The Ibo in the south got secondary or even university education. But they had nothing to say because the politicians from the north always won the elections. To avoid a conflict Nigeria was devided in at first 12 and later 18 provinces with autonomy to a considerable extent. Every province wanted to have his own university. And these universities needed staff. Therefore our second counterpart went back to his home land where he got a position at the university. And I can tell he was not the only one who returned to his home land. This caused problems for the continuity, but, the veterinary faculty of Ahmadu Bello University still exists up to today.

Social life in Zaria

Our social life mostly took place on campus. Apart from the other Dutch there were British, Americans, Swedes and Poles. It was a rather big, mixed group. The children went to the staff school. We taught our children the Dutch language and later geography and history of the Netherlands and Europe. Our freedom of movement was limited, due to the Biafra war. At first I went to Lagos and Ibadan, but later it was no longer allowed to travel to the South. It was impossible to cross the river Niger unless you had a permit. This permit was not granted to us. But to be honest, because there was a war going on we did not feel much of a need to travel to the South. Of course we travelled in the North. For instance I had to visit a research group at a sheep breeding station once in a while. Because it was dangerous to drive at night these visits usually took 2 or 3 days. We did not feel unsafe living in Zaria. The violence between Haussa and Ibo was not directed towards us. And of course we did not interfere. Our cars were often checked to find out if we were transporting Ibo. Later the Haussa started to plunder and burn down the houses of Ibo who had left or were murdered. That made us feel uncomfortable, not in the least because we were wealthy in comparison to the local people. In those days the embassy issued a plan to flee the region. We had to collect petrol and keep our suitcases ready. However, my wife and I would have been unable to leave because my wife was too weak due to a severe hepatitis. Fortunately the violence stopped at once and after these events it remained quiet in Zaria. This was for me reason to believe that the violence was initiated by the authorities.

We had our own vegetable garden and kept poultry. You could say that we lived comfortable although there were long periods that there was no electricity available. The powerplant was run by Ibo before the troubles started. Their places had been taken over by Haussa, who used to be the assistants.

Back home again

We returned to the Netherlands in 1970 because our children had to start their secondary education. I could return to the Institute of Tropical and Protozoan Diseases in Utrecht. That was still possible in those days. In the mean time Dick Zwart had become the new professor. He was familiar with Nigeria, because he had worked as a virologist at the Federal Research Institute at Vom. As such he had visited us sometimes in Zaria, once as an external examiner. He also adviced us on several occasions. This was one of the advantages of working in Nigeria to working in Surinam, because in Surinam you were much more isolated.

In Utrecht I participated in the teaching programme and in research. At first the research was on coccidiosis and later in the field of *Babesia*. Furthermore, I participated in several committees which had to advice on the restructuring of the teaching programme of the Faculty of Veterinary Medicine. To my pleasure I can observe that the plans we had in the seventies are now under serious con-

At the local slaughterhouse Dr. Kuil obtained the material for his research on helminths in sheep (Photo: collection Kuil)

I looked in the laboratories and recognized no one. Although I met some oldtimers afterwards I then realized that my departure from the department was already a long time ago .....

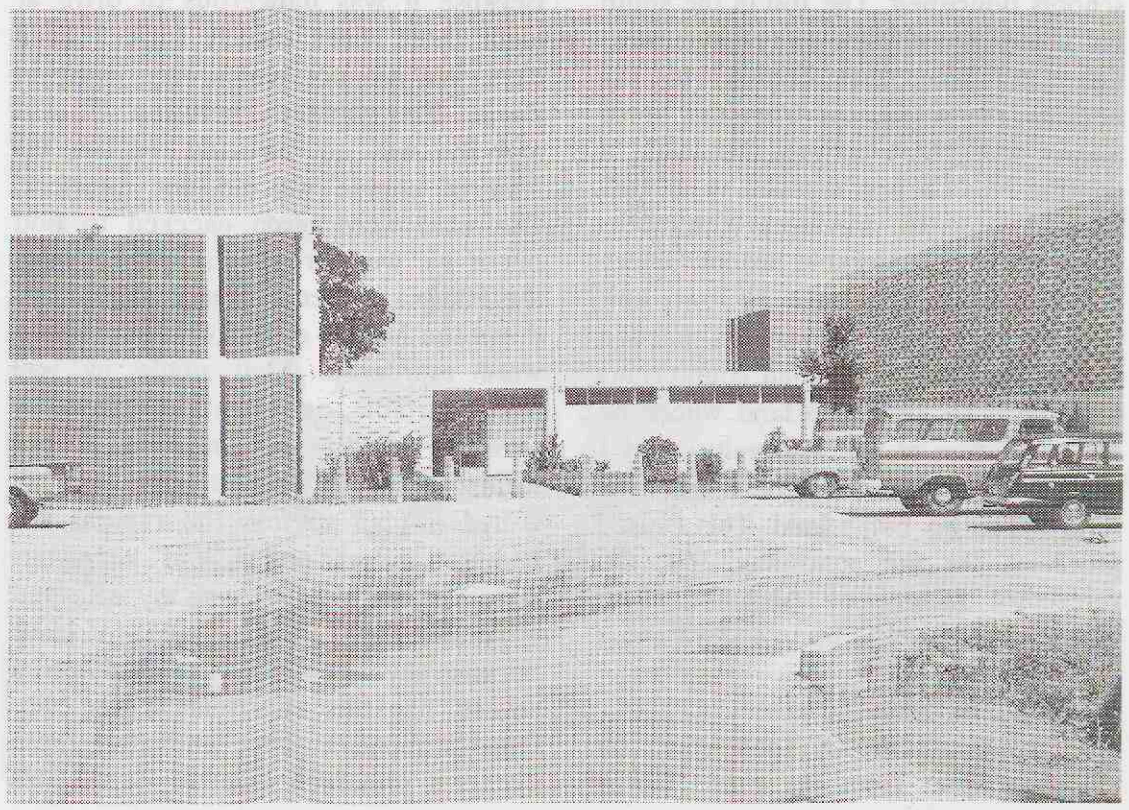
Jean de Gooijer

sideration, although adapted to the present situation.
It is inevitable that we need a drastic differentiation, leading to a separated competence. The current curriculum is too full. We had plans to develop 2 different subjects, namely a public health and a clinical subject.

The end of a career

I worked until 1988. In that year there was not only a re-organisation in the field of education, but also in the structuring and staffing of the departments. This was necessary because the large number of small departments was not efficient. Furthermore, the Institute was the last to move to the faculty's new premises in "The Uithof". After the "rich years" budget cuts were inevitable and fights for space started. I did not like that at all. It became necessary that even in our small department people had to leave. So I thought about it for a while and came to the conclusion that if I would leave somebody else could stay. So I proposed an early retirement. I had worked in the tropics for 12 years, and these years counted double in my pension build-up. Shortly after this decision Professor G. Uilenberg was offered a research position in Paris, France, which he took. Because of this double departure the department was no longer able to fulfill its teaching obligations. So they asked me to help them out. Which I did, and I must admit, with great pleasure, because now my farewell was less abrupt. Subsequently, in 1990, I was one of the editors of the proceedings of the 6th International Conference of Institutes for Tropical Veterinary Medicine on Livestock Production and Diseases in the Tropics.

I think that of the people who left the faculty 8 years ago due to this reorganisation, I am one of the very few that still visit the faculty and still know people. But, I must admit that the last time I visited the department of Infectious Diseases and Immunology I looked in the laboratories and recognized no one. Although I met some oldtimers afterwards I then realized that my departure from the department was already a long time ago .....



The entrance of the Faculty of Veterinary Medicine of the Ahmadu Bello University in 1968 (Photo: collection Kuil)

A REPORT ON THE CLOSING SEMINAR OF THE HERD HEALTH PROJECT IN COSTA RICA

From September 30 - October 2, 1996, the *"Escuela Centro Americana de Ganadería"* (Central American Livestock School), situated in the lovely mountainous landscape near Atenas in central Costa Rica, formed the environment in which a seminar was held to mark the end of the cooperation programme between the Veterinary School of the National University of Costa Rica and the Faculty of Veterinary Medicine of Utrecht University.

History

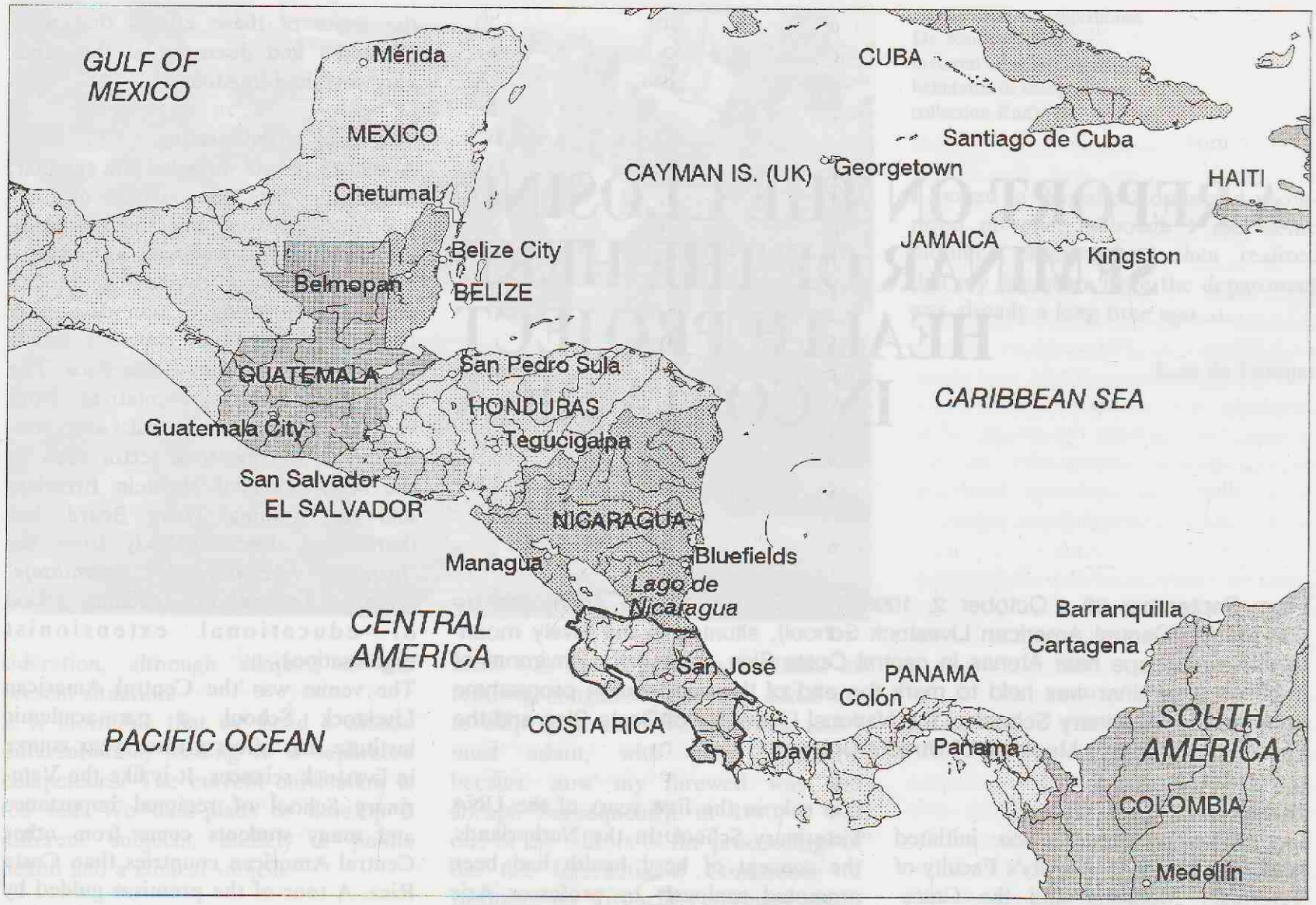
In 1985 a cooperation was initiated between Utrecht University's Faculty of Veterinary Medicine and the Costarican Veterinary School. This Veterinary School is part of the *Universidad Nacional* (UNA), founded in 1973 in the city of Heredia, Costa Rica. It is one of only two centres of veterinary education in Central America, the other one being situated in Guatemala.
In the first three years of the project (1985-1988) one Dutch veterinarian was based at the Costarican Veterinary School (Dr. Jan van Amerongen, one of the senior staff members of the Utrecht Ambulatory Clinic) and much attention was paid to restructuring the last year of the five-year course. A rotation of the students over important clinical disciplines such as Large Animal Medicine, Large Animal Surgery, Herd Health and Companion Animal Medicine and Surgery was introduced, after the model of Utrecht's Faculty of Veterinary Medicine. Also, an ambulatory clinic was set up and large investments were done in the infrastructure that was required.
The concept of herd health was not unknown in Costa Rica. Denominated *"Asistencia Veterinaria Planificada"* (Planned Veterinary Assistance), the idea had been introduced by the late Uruguayan veterinary surgeon Marco Podestá who had played a very important role in the first years of the UNA Veterinary School. In the Netherlands, the concept of herd health had been promoted zealously by professor Arie Brand and some of his co-workers from the mid-seventies on. Initially, data acquisition and analysis were done by hand, but soon this became the limiting factor. Then, the electronical revolution and the unstoppable rise of the computer opened the way for another approach. In 1982 Noordhuizen and Buurman published their herd health computer programme VAMPP (Veterinary Automated Management and Production control Programme). This programme was designed for a microcomputer to be used for educational and research purposes, but, on demand from the field a version for PC was developed that could be used by private practitioners and stockholders. Van Amerongen brought the programme to Costa Rica, but it was his successor, Dr. Mees Baaijen, who became one of the most ardent promotors of the programme. In fact, shortly after his arrival the whole project turned from the clinical focus it had until then, towards the introduction, translation and further development of VAMPP. Baaijen even managed to include in his team the technical father of the programme, Jan Buurman, to assist in the further development and adaptation of the programme. It were the fruits of these efforts that were presented and discussed at the seminar/workshop in Atenas.

The venue of the meeting

About 25 people attended the seminar, originating from all countries of Central America except for (English-speaking) Belize. Most countries were represented by one or two delegates, but there was a strong 6 man delegation from Panama and of course a rather large delegation from Costa Rica. The latter included representatives from various organisations that are connected to the livestock sector such as the Association of Holstein Breeders and the National Dairy Board, but there was also somebody from the *"Instituto Nacional de Aprendizaje"* (National Institute for Teaching, a kind of educational extensionist organisation).
The venue was the Central American Livestock School, a para-academic institute that offers a three year course in livestock sciences. It is like the Veterinary School of regional importance and many students come from other Central American countries than Costa Rica. A tour of the premises guided by a very enthousiastic teacher made clear that this is a well-organized institute that delivers students who are very well prepared for their future jobs. Another indication of the quality of the institute is that three of the staffmembers of the Herd Health Project, Mario Herrero, Cesar Solano and Eladio Alvarez, are pupils from this school. All three of them have obtained their master's degree and two of them have done or are preparing their PhD theses. The school offered simple but adequate housing facilities for the guests coming from abroad and the catering could be qualified as excellent with many homemade products like various types of cheese.

The first day

The first day of the three-day seminar was mainly dedicated to general concepts in herd health. There was an interesting talk by Stella Eefde, a Dutch agronomist who is working in a project on sustainable land use in the humid region of Guácimo, which is situated in the lowlands of the Atlantic zone. Recently, this project has been extended to the semi-dry area of Guanacaste on the Pacific side. From information on the actual use of the land,



the potential of the area in terms of fertility, and from the damages and costs resulting from the use of materials like biocides, the project is able to calculate the optimal use of a certain area, directed towards long-term sustainable land use. A cooperation, using the livestock data from VAMPP, is foreseen.

Mario Herrera presented another interesting and related topic. He is one of the staffmembers of the herd health project almost from the first hour and he has done his master's degree and PhD thesis at the Edinburgh School of Tropical Veterinary Medicine using data from Costa Rica. His research was, among other things, on the use of tropical grasses like Kikuyo which is allegedly the best pasture grass in the Costarican highlands.

Discussion in the afternoon focused on the question how to include smallholders in herd health programmes like VAMPP. This was an interesting discussion as one of the recent political goals of the Dutch international cooperation programmes has been to improve the position of the smallholders. Of course, everybody agreed that for this type of stockholders automated herd health programmes were of no use. Moreover, this type of farmer will disappear for the same reasons as in the western world. It was thought to be rather hypocritical to reinforce the position of smallscale farmers in the third world while on the other hand the Dutch government promotes efficiency and the decrease of the number of farmers at home. It should, however, be kept in mind that the political decisions in The Hague may be based on an assessment of the situation in Africa rather than on the developed state of the Latin American livestock industry.

The second day

The second day was dedicated to the results of research that had been carried out in the past years using VAMPP databases. Cesar Solano held an interesting talk on some genetic aspects of livestock breeding while Sandra Estrada, participant in the Herd Health Project almost from the beginning, focused on data concerning reproductive problems. There was also another presentation on pastures and feedstuff by Mario Herrera and one on growth curves of calves and heifers by Solano.

The third day

On the third day attention was focused on VAMPP itself, its use, the modules that have been developed, and possible future developments. Most of the day was spent in the computer training room of the School which was very apt for this goal. VAMPP is now used on more than 400 farms. The programme is relatively widespread in Costa Rica, but it is by no means the only programme that exists. The Holstein Association for instance uses another programme for its genetic data. There are plans to discuss the exchange of data in the near future.

VAMPP appears to be widely accepted in the main milk-producing province of Panama, the Northern Chirriquí province near the Costarican border. In the other Central American countries the programme is sporadically used on some farms or by associations of veterinarians. This has to be related to the lack of development in the dairy industry in those countries.

VAMPP has been adapted from a merely Dutch programme to a programme that can be used under Central American conditions. This required, apart from a translation, the adaptation of many referential values.

Also, some extra modules had to be developed, like a module for pastures and nutrition, and a genetic module. Future goals are the development of an economic module and the introduction of a single version for dairy cattle, double purpose herds, and beef cattle. Ths single version should offer the possibility of switching from one type of farming to the other. Many examples of studies based on VAMPP data (the database now encompasses over 1 million entries!) were given. Some had been revealing, such as the observation that on a certain farm the gift of concentrates was so generous that the cows got literally 0% of their energetic requirements from the pasture they were turned in daily. Or another study that proved that the semen of one bull used for A.I. had no fertility at all (this was admitted by the commercial supplier of the semen and farmers were offered free inseminations with semen from other bulls instead).

In the final discussion that took place the last afternoon most participants seemed convinced that VAMPP is an important tool in herd health management. Dr. Manuel Ruíz from IICA (*Instituto Interamericano de Cooperación Agrícola* or Interamerican Institute for Agricultural Cooperation) outlined an existing plan aiming at restructuring the livestock sector in the whole Central American region. This would require the formation of a network of many organisations and institutions. A system like VAMPP could be used as a tool in this network. He wondered if the development of VAMPP had become the main target of the project. Is it necessary to develop things like economic modules within a programme like VAMPP or would it perhaps be easier to use data from VAMPP as input for already existing economic programmes? Cesar Solano answered that, though VAMPP remained a tool, the development of this tool was one of the goals of the project. Mees Baaijen added that cooperation with other data bases had failed thus far, mainly because of the lack of reliability of the other systems.

Final remarks

There is no doubt that the seminar and workshop were very useful. Not in the least because it provided the opportunity for the participants to communicate at a regional level and to discuss the problems that were of concern to them all. The atmosphere was very friendly and many participants were active in the plenary discussions after the presentations. This led to some problems with regard to the time schedule of the meeting, but it was illustrative for the active attitude and real interest of many participants.

The achievements in the past years are impressive. Many scientific articles have been published or are in preparation and a number of academic degrees are the direct fruit of the VAMPP database. Herd health is undoubtedly a viable concept in the Central American situation. This of course is only true for the educated and somewhat progressive dairy farmer, but that in itself is not different from the situation in Holland or any other part of the "developed" world.

VAMPP is an excellent tool but its significance should not be overrated. The question remains whether it is necessary to develop all possible modules and options within the programme or to work on an easier communication with other data analyzing systems. Very important also is the feedback to the farmer as he is the person who decides whether VAMPP or any other automated herd health system will serve him or not.

The seminar in Atenas was a worthy and successful end of a project that, despite some "bumps in the road", has made good achievements.

René van Weeren

FOR YOUR INFORMATION 1

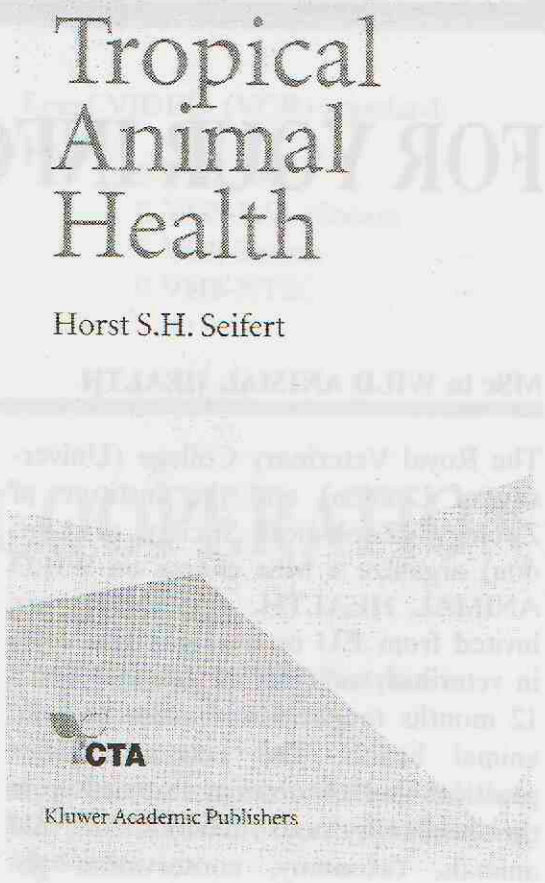
NEW BOOK

TROPICAL ANIMAL HEALTH
Horst S.H. Seifert

(Kluwer Academic Publishers, Dordrecht / Boston / London; 1996, 2nd edition; ISBN 0-7923-3821-9, hard cover, 548 pages, 73 figures, 41 tables, price Dfl. 355 or approx. US$ 215)

'Tropical animal health' is the revised edition of 'Tropentierhygiene' published in German in 1992. In this book on animal health in the tropics the health problems and risks of domestic large animals in the tropics are presented in a systematic way and in relation to current production systems.

The book is divided in three parts. Part I, which deals with 'veterinary health care in the tropics', is a revision of a publication of 1983 in the 'Göttinger Beiträgen zur Land- und Forstwirtschaft in den Tropen und Subtropen' entitled: 'Theoretische Grundlagen der tropentierhygiene'. In this part defence mechanisms are described as well as the special relation which exists in the tropics between animal host, vector and disease agent, a relation unknown in temperate zones. The resistance of the local breeds is highlighted and presented in contrast to the disease susceptibility of exotic breeds in tropical zones. Instructions are provided how to adapt immune- and chemoprophylaxis to social-economic and ecological con-



ditions in developing countries.
The description of the immunology is limited to the information needed for a good understanding of the epidemiology of livestock diseases in the tropics and the execution of preventive measures. In separate chapters the biology and the control of vectors of tropical diseases are extensively treated. However, an integral discussion on the biology and control of each vector would have provided a more clear picture to the reader.
Part II of *'Tropical animal health'* which is entitled 'animal diseases in the tropics', describes the ethology and distribution, pathogenesis, clinical symptoms and pathological changes, and diagnosis, therapy and prevention of livestock diseases in the tropics. Emphasis is put on diseases which play a role in the extensive production systems of ruminants. Infectious diseases of pigs and poultry in intensive production systems are not included. Unfortunately the internal parasites are not covered as well. Wrongly, the author defends this omission with the statement that affections caused by these parasites do not differ substantially from similar affections in the temperate zone.
The standard work "Tropische Tierseuchen und ihre Bekämpfung" by Mitscherlich en Wagener (1970) was used as starting point for part II, and was well completed with soil-borne diseases and plant poisenings. Especially these chapters of the 2nd edition have been supplemented with recent information. For the supplementation of the other diseases in this chapter, the author made extensive use of the standard work 'Infectious diseases of livestock, with special reference to Southern Africa' (edited by J.A.W. Coetzer, G.R. Thomson and R.C. Tustin), which was published in 1994.
Although some more recent publications are cited in this 2nd edition, the available information from the literature is not always presented consistently. For example, in the section on trypanotolerance of the West African cattle breed, the N'Dama, it is stated that the resistance of this breed is based on acquired immunity against local trypanosome stains, and only effective in this specific location. However, already over 15 years ago it was shown that the resistance is mainly based on genetically determined mechanisms and consequently not limited to the location where the animals kept. This important observation resulted in substantial export of N'Dama from West Africa to other parts of the continent.
In part III of *'Tropical animal health'* (30 pages) the most important livestock production systems in the tropics, namely the nomadic system, the small scale farming system, ranching, dairy farming and feed-lot, are presented. Attention is paid to the influence of ecological, technical and social-economic aspects. Based on these observations strategies for a veterinary health care systems within these production systems are described.

Although the book is presented as a study book, it contains too many facts and is too comprehensive to serve as a study book for students. However, it may very well serve as source of reference for the veterinarian who is actively involved in animal health care in the tropics.
The author, the editor and the Technical Centre for Agriculture and Rural Cooperation (CTA) in Wageningen, the Netherlands, have to be complimented for their efforts to prepare and publish the English version of the first edition of *'Tropical animal health'* which was written in German. By doing so the book is now open to the great majority of potentially interested readers in the developing countries.

R.W. Paling

FOR YOUR INFORMATION 2

MSc in WILD ANIMAL HEALTH

The Royal Veterinary College (University of London) and the Institute of Zoology (Zoological Society of London) organize a MSc course on WILD ANIMAL HEALTH. Applications are invited from EU or overseas graduates in veterinary or relevant sciences for a 12 months taught MSc course on wild animal health. The course includes practical and theoretical instruction in the husbandry and nutrition of wild animals, taxonomy, conservation genetics, utilisation of wildlife, welfare and ethical aspects, epidemiology, immunology, infectious and non-infectious diseases, disease investigation, therapeutics, imaging and preventive medicine, and restraint, anaesthesia and aspects of surgery in various taxa, together with an individual research project. Training will be given by the staff at the Royal Veterinary College and the Institute of Zoology as well as invited speakers from other veterinary and zoological centres.
Full particulars and an application form are available from: Head of Registry or Dr. M.T. Fox, Royal Veterinary College, Royal College Street, London NW1 0TU (Tel.: +44.171.4685000; telefax: +44.171.3832342).

(Copied from The Veterinary Record vol. 139, nr. 16 of 19 October, 1996).

FOR YOUR INFORMATION 3

VIDEO "COWDRIOSIS OF DOMESTIC RUMINANTS"

The Department of Infectious Diseases and Immunology of the Faculty of Vetcrinary Medicine of Utrecht University, The Netherlands, has developed an educational video on cowdriosis (heartwater) of domestic ruminants.

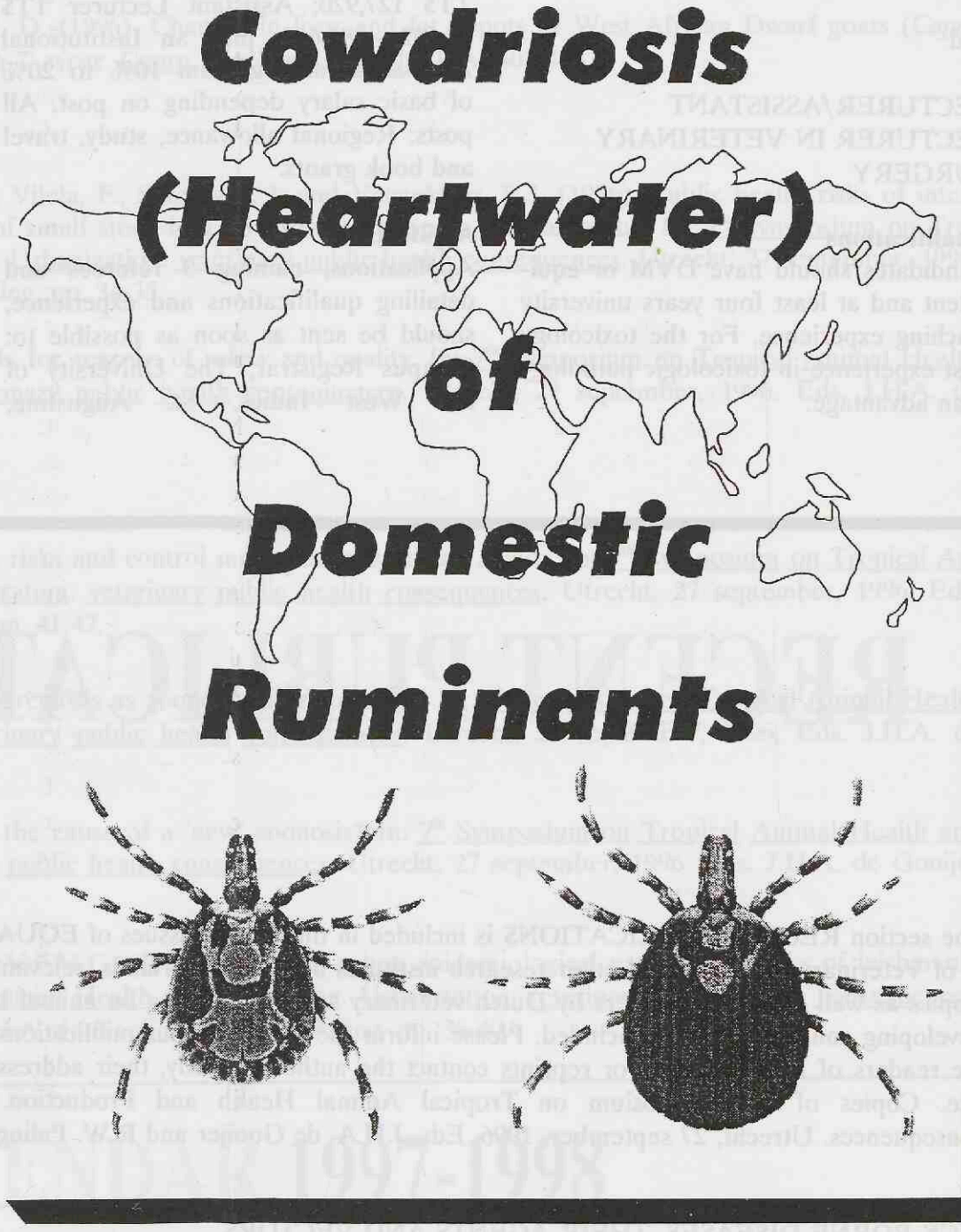
The (English spoken) video of 19.28 minutes duration, gives a short historical review of the disease, its geographical distribution and the important vector ticks. It shows the clinical signs and pathology associated with heartwater and provides information on diagnosis, therapy and prevention.

The video is produced by Roeland Wessels DVM, with scientific advisc from Frans Jongejan PhD, and is developed especially for use in educational and training programmes on tropical veterinary medicine.

Copies of "Cowdriosis of domestic ruminants" can be obtained for the price of US $ 50.
To order your copy please return the reply slip to :

Department of Infectious Diseases and Immunology
Faculty of Veterinary Medicine
Utrecht University
P.O. Box 80.165
NL-3508 TD Utrecht
The Netherlands
Fax: +31.30.2540784
E-mail: F.Jongejan@vetmic.dgk.ruu.nl

Include a cheque of US $ 50, made payable to the address above
Allow 30 days for delivery.



Name:
Address:

Country:
Fax:
E-mail:

Local VIDEO (VCR) standard:

0 VHS-PAL
0 VHS-PAL/Secam
0 VHS-Secam
0 VHS-NTSC

VACANCIES INTERNATIONAAL COOPERATION

This section contains vacancy announcements which the editorial board considers to be of possible interest to Dutch veterinarians. Besides vacancies that will be taken from Vacatureblad Internationale Samenwerking, Tijdschrift voor Diergeneeskunde, Veterinary Record, Intro vacatures (RPD Advies/ Ministry of Internal Affairs) etc., there will be room for personnel advertisements. For further information about the vacancies please contact the institution or company directly.

The University of the West Indies
St. Augustine, Trinidad

Applications are invited for the following posts in the School of Veterinary Medicine,

LECTURER/ASSISTANT
LECTURER IN VETERINARY
TOXICOLOGY

and

LECTURER/ASSISTANT
LECTURER IN VETERINARY
SURGERY

Qualifications
Candidates should have DVM or equivalent and at least four years university teaching experience. For the toxicology post experience in toxicologic pathology is an advantage.

Remuneration
Annual salary range: (Medical) Lecturer TT$ 98,928 - TT$ 109,104 (B) - TT$ 127,920; Assistant Lecturer TT$ 80,592 - 85,680, plus an Institutional Allowance ranging from 10% to 20% of basic salary depending on post. All posts: Regional allowance, study, travel and book grants.

Application
Applications, naming 3 referees and detailing qualifications and experience, should be sent as soon as possible to: Campus Registrar, The University of the West Indies, St. Augustine, Trinidad. Further particulars will be sent to all applicants and are also available from Appointments Department, association of Commonwealth Universities, 36 Gordon Square, London WC1H 0PF, UK (Tel.: +44.171.-3878572 ext. 206; telefax: +44.171.-8133055; e-mail: appts@acu.ac.uk).

(Copied from The Veterinary Record vol. 139, nr. 15 of 12 October, 1996).

RECENT PUBLICATIONS (21)

The section RECENT PUBLICATIONS is included in the English issues of EQUATOR. Scientific publications of the Faculty of Veterinary Medicine and other research institutes in The Netherlands, relevant to livestock production and health in the tropics as well as titles of papers by Dutch veterinary scientist working on animal health and production topics in relation to developing countries, will be included. Please inform the editor of your publications so we can bring them to the attention of the readers of EQUATOR. For reprints contact the authors directly, their addresses can be obtained from the editorial office. Copies of '7th Symposium on Tropical Animal Health and Production. Urbanization: veterinary public health consequences. Utrecht, 27 september, 1996. Eds. J.H.A. de Gooijer and R.W. Paling' are available from the editorial office.

TICK-BORNE DISEASES, THEIR AGENTS AND VECTORS

Oliveira, d' C., Tijhaar, E.J., Shiels, B.R., Weide, M. van der, and Jongejan, F. (1996). Expression of genes encoding two major *Theileria annulata* merozoite surface antigens in *Erchericia coli* and a *Salmonella typhimurium* aroA vaccine strain. Gene 172: 33-39.

Steward, N.P., Uilenberg, G. and Vos, A.J. de (1996). Review of Australian species of *Theileria*, with special reference to *Theileria buffeli* of cattle. Tropical Animal Health and Production 28: 81-90.

Uilenberg, G. (1996). Prevalence and importance of tick-borne diseases in Africa. In: Ticks and tick-borne diseases of Africa. Report on a workshop held at the Onderstepoort Veterinary Institute, South Africa, 4-7 September, 1995. Eds. A.D. Irvin, C.G. Stewart and G. Uilenberg, pp. 3-15.

TRYPANOSOMIASIS

Dam, J.T.P. van, Heide, D. van der, Hel, W. van der, Ingh, T.S.G.A.M. van den, Verstegen, M.W.A., Wensing, T. and Zwart, D. (1996). The effect of *Trypanosoma vivax* infection on energy and nitrogen metabolism and serum metabolites and hormones in West African Dwarf goats on different food intake levels. Animal Science 63: 111-121.

Dam, J.T.P. van, Hel, W. van der, Hofs, P. and Zwart, D. (1996). The relation between feed intake responses to successive trypanosome infections of trypanotolerant West African Dwarf goats. In: Dam, J.T.P van, The interaction between nutrition and metabolism in West African Dwarf goats, infected with trypanosomes. PhD thesis, Wageningen Agrigultural University, The Netherlands.

Dam, J.T.P. van, Schrama, J.W., Hel, W. van der, Verstegen, M.W.A. and Zwart, D. (1996). Heat production, body temperature, and body posture in West African Dwarf goats infected with *Trypanosoma vivax*. Veterinary Quarterly 18: 55-59.

Hamminga, B.J., Wensing, Th. and Zwart, D. (1996). Changes in liver and fat depots of West African Dwarf goats (*Capra aegagus hircus*) after an infection with *T. vivax*. Comp. Biochem. Physiol. 113A: 401-406.

VETERINARY PUBLIC HEALTH

Harun, M.A.S., Afonso, S.S., Ferro, C.M., Vilela, F., Sotomane, I. and Veeneklaas, R.J. (1996). Public health risks of inter-urban production and consumption of small stock in Tete Province, Maputo, Mozambique. In: 7th Symposium on Tropical Animal Health and Production. Urbanization: veterinary public health consequences. Utrecht, 27 september, 1996. Eds. J.H.A. de Gooijer and R.W. Paling. pp. 34-35.

Krol, B. Valorization of animal by-products for reasons of safety and quality. In: 7th Symposium on Tropical Animal Health and Production. Urbanization: veterinary public health consequences. Utrecht, 27 september, 1996. Eds. J.H.A. de Gooijer and R.W. Paling. pp. 17-21.

ZOONOSES

Balogh, K.K.I.M. de (1996). Urban rabies: risks and control measures in southern Africa. In: 7th Symposium on Tropical Animal Health and Production. Urbanization: veterinary public health consequences. Utrecht, 27 september, 1996. Eds. J.H.A. de Gooijer and R.W. Paling. pp. 41-47.

Bongers, J.H. (1996). Present status of tuberculosis as zoonosis in urban areas. In: 7th Symposium on Tropical Animal Health and Production. Urbanization: veterinary public health consequences. Utrecht, 27 september, 1996. Eds. J.H.A. de Gooijer and R.W. Paling. pp. 25-28.

Osterhaus, A.D.M.E. (1996). Ebola virus: the cause of a 'new' zoonosis? In: 7th Symposium on Tropical Animal Health and Production. Urbanization: veterinary public health consequences. Utrecht, 27 september, 1996. Eds. J.H.A. de Gooijer and R.W. Paling. pp. 48.

Ruitenberg, E.J., Pinelli, B.E. and Rutten V.P.M.G. (1996). The intra-urban epidemiological pattern and risks of leishmaniosis. In: 7th Symposium on Tropical Animal Health and Production. Urbanization: veterinary public health consequences. Utrecht, 27 september, 1996. Eds. J.H.A. de Gooijer and R.W. Paling. pp. 36-40.

CALENDAR 1997-1998

Nice, France
12 - 14 January, 1997
International Embryo Transfer Society (I.E.T.S.), Annual meeting 1997. Topics: Regulation of follicular and oocyte maturation; Epidemiology of diseases related to the use of E.T.; Progress with new sources for genetic material in breeding; What determines sex in mammals; Intercellular communication between embryo and recipients. Information and registration: IETS, Annual meeting 1997, UNCEIA, 149 Rue de Bercy, 75595 Paris Cedex 12 (Telefax: +33.140045379).

Berlin, Germany
March - July, 1997
Training Course on Veterinary Epidemiology and Animal Health Management. Organized by: Postgraduate Studies of the Department of Tropical Veterinary Medicine of the Faculty of Veterinary Medicine, Free University Berlin. Programme: see EQUATOR vol. 8, no.5. For information and registration: Freie Universitaet Berlin, Weiterbildende Studien Tropenveterinaermedizin, Luisenstrasse 56, D-10117 Berlin (Tel: +49.30.2093-6063; telefax: +49.30.2093-6349; e-mail: TropVet-@city.vetmed.fu-berlin.de).

Vienna, Austria
7 - 11 April, 1997
FAO/IAEA Symposium on 'Diagnosis and control of livestock diseases using nuclear and related techniques', 'Towards disease control in the 21th century'. Organized by: The Animal Production and Health Services of the Joint FAO/-IAEA Division. Programme: Serology, molecular biology, epidemiology and socio/economics and their current and future role in diagnosis, control and eradication of the major diseases affecting livestock. Location: VIC, Vienna. Information and registration: IAEA, P.O. Box 100, A-1400 Vienna (Tel.: +43-.1.2060.26054; telefax: +43.1.20607; e.mail: crowther@ripo1.iaea.or.at).

Montpelier, France
5 - 9 May, 1997
4th Biennial meeting of the Society for Tropical Veterinary Medicine (STVM-97). Programme: (1) Molecular epidemiology of tropical diseases with subjects: Molecular techniques and diagnosis; Epidemiology;

Application of molecular epidemiology to tropical countries; Tropical diseases as a model in molecular epidemiology. (2) Hemoparasitic diseases and their vectors with subjects: Tick biology; Tick pathogen interactions; Integrated control of tick and tick borne diseases; Trypanosomiasis diagnosis and control; Tsetse biology and control. (3) General sessions: Contributed papers on: Tropical veterinary medicine; Disease diagnosis, management and control, etc. Organization is in collaboration with CIRAD-EMVT. For information: Internet STVM homepage http: //forest.bio.ic.ac.uk/STVM. Information: Dr. E. Camus, CIRAD, BP 2386, Jarry Cedex 97002, Gouadeloupe (FWI) (Tel.: +590.252490; telefax: +590.252492; e-mail: camus@cirad.fr).

Onderstepoort, South Africa
5 - 31 May, 1997
FAO/IAEA Regional training course on: 'The use of enzyme immuno assays in the diagnosis and monitoring of Contagious Bovine Pleuropneumonia'. Training programme: disease diagnosis by ELISA technology; data management; introduction of concepts of the use of PCR and DNA probes in animal disease diagnosis and monitoring; practical training in these techniques. Location: ARC, Onderstepoort Veterinary Institute. Application for scientists of African countries (IAEA scholarships are available): on standard IAEA form 'Nomination for training course', through Ministry of Foreign Affairs or UNDP Office to: IAEA, P.O. Box 100, A-1400 Vienna (Telefax: +43.1.20607). Closing date: 1 February, 1997.

Bornholm, Denmark
22 - 24 May, 1997
XVIII Symposium of the Scandinavian Society for Parasitology, with a special mini-symposium on Human and Veterinary Tropical Parasitology. Information: Secretariat of Symposium Bornholm, Danish Bilharziasis Laboratory, Jaegersborg Allé 1D, DK-2929 Charlottenlund (Tel.: +45.39.626168; telefax; +45.39.-626121).

Barneveld, The Netherlands
16 - 27 June, 1996
3rd Course on: Artificial insemination in pigs. Subjects: Collection of semen; Evaluation and processing of semen in the laboratory; Insemination and sow production control; Organization of an AI station and Selection of breeding stock. Fees including board and lodging: Dfl. 5,000. Information: IPC Livestock Barneveld College, Dep. of International Studies and Cooperation Programmes, P.O. Box 64, 3770 AB Barneveld (Tel.: +31.342.414881, telefax: +31.342.492813, e-mail: io@ipcdier.hacom.nl).

Sun City, South Africa
10 - 15 August, 1997
16th International Conference of the World Association for Advancement of Veterinary Parasitology (WAAVP). Organized by: Parasitological Society for the Advancement of Southern Africa. Information: 16th WAAVP Conference, Event Dynamics, P.O. Box 567, Stathaven, 2031, South Africa (Tel.: +27.11.8836155, telefax: +27.11.-8839643).

Wageningen, the Netherlands
17 August - 21 November, 1997
25th International course on dairy farming in rural development. Course programme: Introduction; Dairy development; Farming systems; Statistics; Economics and agricultural credit; Breeding; Pasture production; Nutrition and feeding: Animal health; Reproduction and AI, Extension and case studies. Course fee: Dfl. 5,500. Closing date: 1 May, 1997. Information and registration: International Agricultural Centre (IAC), P.O. Box 88, 6700 AB Wageningen (Tel.: +31.317.-490111, telefax: +31.317.418552, e-mail iac@iac.agro.nl).

Barneveld, The Netherlands
18 August 1997 - 20 February, 1998
27th International course on poultry husbandry and 27th International course on pig husbandry. Organized by: IPC Livestock International, Barneveld College. These courses will run at the same time. Following these courses participation is possible in the 20th International animal feed training programme (AFTP), which runs from 23 February to 22 May, 1998. Direct entry in this last course is also possible. Fees including board and lodging: Poultry course: Dfl. 24,500; Pig course: Dfl. 24,500, Feed course; Dfl. 12,000 or 14,500 (direct entry). Closing date: 1 May, 1997. Information: IPC Livestock Barneveld College, Dep. of International Studies and Cooperation Programmes, P.O. Box 64, 3770 AB Barneveld (Tel.: +31.342.-414881, telefax: +31.342.492813, e-mail: io@ipcdier.hacom.nl).

The Hague, The Netherlands
24 - 29 August, 1997
World Congress on Food Hygiene and 12th International symposium of the World Association of Veterinary Food Hygienists. Congress theme: Healthy animals, healthy food, healthy consumers. Information scientific programme: Prof. Dr. J.G. van Logtestijn, Drieklinken 63, NL-3972 EC Driebergen. Information and registration: Royal Netherlands Veterinary Association, Mrs. D. Raasing, P.O. Box 14031, NL-3508 SB Utrecht (Tel.: +31.30.2510111, telefax: +31.302511787, e-mail: knmvd@pobox.ruu.nl).

Acapulco, Mexico
6 -12 September, 1997
7th International Theriological Congress (7ITC) and Symposium on 'Veterinarians in conservation biology'. The symposium is organized by: World Association of Wildlife Veterinarians. For information about and contributions to the symposium contact: Dr. A.W. English, University of Sidney, Department of Animal Health, Private Mailbag 3, Camden, NSW 2579, Australia (Telefax: +61.46.552931).

Harare, Zimbabwe
14 - 18 September, 1998
First announcement of the IX International Conference of the Association of Institutions of Tropical Veterinary Medicine (AITVM). Organized by: Faculty of Veterinary Science, University of Zimbabwe, P.O. Box MP 167, Harare. Location: International Conference Centre, Harare.