

Trypanosomiasis and Dengue

Alarm Bell's Ringing, We Must Act Now

by Dr Mainuddin Ahmed

We should reinforce our quarantine control measures. If it is confirmed that Bangladesh has tsetse flies as well as trypanosomes, urgent preventive measures must be mounted and assistance of FAO, IAEA and WHO should be sought...If we do not have sufficient trained physicians and scientists, we should act now and send them to the appropriate places for training.

INCIDENCE of Trypanosomiasis and Dengue in Dhaka has hit the press recently. The first one is due to deaths, suspected to be caused by Trypanosomes in tigers of Dhaka Zoo and second due to human casualties by sudden unidentified viral infections and dengue. Trypanosomes are protozoa (single cell animals) that cause sleeping sickness in humans and 'nagana' in animals. Both the diseases are fatal to both the groups. It is a great problem in Africa where 150 million cattle in 10 million square kilometres covering around forty countries are affected in one way or another by the presence of tsetse flies (*Glossina* spp) of housefly group. They transmit the parasite trypanosomes by biting animals. The parasites destroy red blood cells and immune system; animals then die as a result of anaemia or being unable to fight off other infections. It mostly occurs in hot, humid and riverine areas of Africa. Tsetse female does not lay eggs like other houseflies; it gives birth to few larvae in its lifetime, one at a time, unlike most of the flies, which lay eggs in hundreds. Therefore, for the development of larvae in the uterus, females essentially need blood meal. High concentration of their population in an area for infection of cattle and human being is not an important factor, presence of a few flies per square kilometres is enough to cause infection, as they will find the hosts miles away from a blood meal.

Therefore, it is very difficult to successfully control tsetse flies by the conventional methods of spraying. Traditional practice in Africa was to burn hundreds of square kilometres of bush to destroy the insects as well as their habitats. This practice is currently not popular due to population pressure and environmental reasons. The available method of control is to suppress and/or eradicate tsetse flies. Therefore, the incidence should be alarming, if it occurs here; it will cause devastation to human as well as our animal population includ-

ing cattle, sheep, goats and buffaloes. If I go down my memory lane, in 1970s when I was working as one of the scientists in Seibersdorf FAO/IAEA Laboratory which was working on rearing and control of tsetse flies among other insects, I read a report where it was mentioned that there were four tsetse species in our Subcontinent, none of them was a carrier of sleeping sickness. Considering the fact that the world is a global village, movements of goods, animals and human beings are very fast; so are that of parasites and pathogenic microorganisms and viruses. In addition to strict quarantine measures to control incoming pests and diseases to protect our people and animal resources, we must make a survey to establish whether trypanosomes occur in our flies.

Diagnosing trypanosomes is difficult, as often infected animals have a very few parasites. Using latest biochemical and immunological techniques, workers at the International Laboratory for Research in Animal Diseases (ILRAD), Nairobi, Kenya and the Seibersdorf FAO and IAEA Laboratory in Austria have developed an accurate and reliable diagnostic kit, which is being distributed to their member states. It may be mentioned that Seibersdorf has developed mass rearing techniques for tsetse flies. This technology has been transferred to some African countries where it has underlain the control of tsetse flies by sterile male technique (SMT). SMT is simply a family planning for insects. Thousands of flies are reared artificially in the laboratory. They are sterilized by radiation and released in the infested areas. Sterile flies mate with the normal

ones, resulting in no offspring. The Joint FAO/IAEA Division has successfully assisted some Member States in controlling some areas of their land by SMT.

By the middle of 1990s, a project has been undertaken to eradicate tsetse flies from Zanzibar, a large island of Tanzania. So far the result is very positive. It may not be out of place to mention that in 1992-93 screw worm (*Callitroga* sp) infestation in cattle was reported in Libya. It does not occur particularly in North Africa. It immediately alarmed the African countries. It is a native of Americas. Origin was the infested beef imported from a South American country. Screwworms are flesh eaters. Therefore, they cause havoc to the cattle farmers in Americas. By the end of 1950s the screw worms were eradicated from the southern States of United States where they usually used to occur, and since then hundreds of millions of dollar worth of cattle are being saved per annum. With the coordination and technical support of FAO and IAEA and some donor countries, the screwworm was eradicated from Libya within 2-3 years of its occurrence by SMT. Before it is too late we must take appropriate measures to control both hosts and parasites as we have the same climatic condition for both the flies and pathogens. If not already done, our authorities concerned should contact the above Laboratory for assistance for surveillance and control.

Dengue is a viral disease and infected by mosquitoes *Aedes* spp, particularly *A. aegypti* and *A. albopictus*. It is also the carrier of yellow fever in Africa. So far we know, they are not common in our country, but in South-

east Asia. Dengue is not considered a fatal disease, but most uncomfortable. The victim will never forget it in his/her lifetime. If it happens second time, it is fatal. I wish to share my experience with the readers. While I was in an IAEA mission in Jakarta in 1991, I was heavily bitten by mosquitoes at night and hospitalized for ten days. It is mentioned in the literature that incubation of the virus in the host takes about 4-7 days. On the fourth morning I fainted in the bathroom. It repeated in the meeting after couple of hours. Then I was hospitalized. Continuously for three days I had convulsions and high fever. However, when I became conscious, I could see the blood vessels in my limbs were red and swollen. Thank Allah that it happened in Jakarta not in Vienna; I was treated well. It is a tropical disease; my personal experience is that I was lucky as I was in tropical country. I don't think I would have got such treatment. We should consider approaching our neighbors for help, assistance and guidance for disease control.

I appreciate media coverage on both the diseases in the context of Bangladesh. It is also gratifying that the government is taking action approaching in right direction. Two institutes i.e. ICDDR and ICDDR have been given responsibility for control and treatment of the diseases. Definitely both deserve to take up these issues. However, as an entomologist my humble submission is that whether experienced medical entomologists have been included in the teams. Teams must include trained entomologists, particularly experienced in taxonomy of flies. It must be confirmed

what are the flies of both groups that occur in Bangladesh. As it is known *Aedes aegypti* and *Glossina* palpalis (causing sleeping sickness in man), *Glossina morsitans* (causes 'nagana' in animals) or like species are causative agents of both the diseases. Preventive measures must be taken before they establish in the country. It has been mentioned that diagnosing trypanosomiasis is not easy because infected animals often have so few parasites in the blood that these may not be found by microscopy methods which are commonly used. Serological test methods have their drawbacks as well. The FAO/IAEA in Vienna could be approached for the diagnostic kits. Some veterinary institutes in Asia such as in Indonesia, Malaysia and Viet Nam are supplied with the above kits. Someone from Bangkok mentioned in the 'Letter Column' of DS that vaccines are available for treatment of dengue. We should have them and try in our condition.

In conclusion I repeat that we should reinforce our quarantine control measures. If it is confirmed that Bangladesh has tsetse flies as well as trypanosomes, urgent preventive measures must be mounted and assistance of FAO, IAEA and WHO should be sought. Libya's eradication programme had cost the UN organizations, donor countries and the country itself about US\$ 80-1000 million. If it had spread through North Africa and beyond, it would have cost hundreds of millions of dollars annually. And as human being are also involved here, we should act soon. If we do not have sufficient trained physicians and scientists, we should act now and send them to the appropriate places for training. We have already been alarmed. It is the responsibility of the government to strike before it reached a point of no return.

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IMMIGRATION TO CANADA

Opportunity Expands for the Qualified and the Eligible

by M Abrar Hossain

CANADA is the home of hundreds of immigrants from around the world. It is among the so-called 'Big Five' migrant destinations. But flexible immigration policy with better attractions has perhaps made Canada the best and most popular destination compared to other countries.

Canada politically stable and a parliamentary democracy, is the second largest (are a wise) country in the world with a population of only 30 million (three crores). Officially a bilingual country with the population speaking English and French. Canada is an affluent society, rich in resources with high-tech industrial and a free enterprise economy. The government assists immigrants in job search and business loans. It is a peaceful orderly society having a low crime rate, virtually free or inexpensive medical care under the National Health-care system, free high quality education with education financing programme. Above all, it is a safe place to raise future generations, enjoying liberty and equal treatment for all.

Immigration to Canada has increased steadily since the end of the Second World War. A country with one of the world's highest standard of living, relatively uncrowded habitats and many opportunities for newcomers, Canada offers much to would-be immigrants. The United Nations has voted Canada as one of the best places in the world to live in. It has been ranked as the country with the best quality of life in this year's United Nations Human Development Report. The United Nations Development Programme's human development index measures lifestyle quality by assessing a number of factors including life expectancy, income levels, health, literacy, education and gender empowerment. This index gives an overall picture of how a society treats its people.

According to the 'IMF World Economic Outlook' Canada is predicted to have the highest economic growth among G-7 countries as well as being one of the top places in the world to do business over the next few years. No wonder then that so many migrants including thousands of Asians will take advantage of one of the world's most flexible immigration programmes.

But Canada has failed to attract its desired number of immigrants for two years running. The country's demand for new residents has out-weighted supply. However, the targets will likely remain the same next year according to the Immigration Minister Mrs Elinor Caplan. The targets for both the last two years was missed by more than 50,000. According to

the Minister there has not been any decision until now to increase the present target of 225,000. What the government is attempting to do is to see what they can do to achieve the current year's target, to speed up and allow more immigrants.

Another reason to make the Canadian immigration policy flexible is the need for young skilled people to fill the vacuum made by the retirees. The 1999 Canada Year Book has revealed that Canadian society is ageing rapidly and without an influx of younger immigrants the social security system will not be able to deliver promised benefits to the retirees. As such the real long-term benefit will be found in a skilled, productive, progressive workforce able to create a formidable economy. It is the new immigrants who can meet this need.

Canada operates one of the most expansive immigration policies in the world. Underpinning the country's migration policy is the belief that migrants will work together with other Canadians to build a more open society. Knowing this, many people from around the world have already moved in to expand and improve their careers, quality of life, their children's future, living environment and leisure opportunities. They know what they want and where to get it. Alternatively, migrants bring prosperity and jobs for people in Canada. They bring with them rich human experience, expertise and initiative as well as a willingness to help Canada build a stronger place for Canadians and their children. It is a recognized fact that while the English and French were the founders of the country, it is the immigrants from all over the world who contributed to the development of Canadian society.

There is no immigration quota based on either nationality or region. Therefore, people from overpopulated countries can take advantage of this flexible immigration policy for brighter future. Plans Bangladesh is no exception.

This year's immigration target of 225,000 is divided under different categories: 117,900-130,000 are in the Independent and Business class, 53,500-58,300 in the family class, 22,100-29,300 in the refugee/Humanitarian class and 6,500 'Other' migrants which include special programmes such as the *Blue-Card* programme, Provincial Nominee Programme (PNP), Spousal Pilot Project, and the Software Development Pilot Programme. It is emphasized that Canada will continue to welcome immigrants who are expected to work together with other Canadians to build a more prosperous so-

ciety. Canada wants to make it very clear to the international community that its doors are still wide open. There is possibility of increasing the immigration target to 500,000.

However, Canada is actively seeking only those who are qualified and eligible within the set criteria, particularly where there is chronic shortage of skilled personnel. It is looking for migrants who have a good education, training, communication skills in either English or French, employment skills that are portable to the Canadian labour market, good character and health as well as sufficient funds to settle in Canada.

Applicants chasing the Canadian lifestyle will get there by applying for a permanent Resident Visa under one of the four different classes:

(i) Independent: This is the most popular route. This class is sometimes known as the economic stream and termed 'Economic Migrants' because they offer direct economic benefits either because of their work skills or business plans in the case of Business class migrants. The independent category is based on points system. To succeed, an applicant must pass a points test.

(ii) Business class: This class is sub-divided into three sub-categories — Investors, Entrepreneurs and Self-Employed migrants. These categories have their own criteria which must be met in order to be eligible for migration.

(iii) Family class: It applies to those applicants who have certain relatives in Canada. The qualifying relatives must agree to 'sponsor' the applicant into Canada.

(iv) Refugee/Humanitarian class: In this category a person who can demonstrate a well-founded fear of persecution in his/her native land can apply for immigration. Their application is based on some basic factors.

Besides, certain skills are currently in high demand and in order to speed up recruitment and visa processing, special programmes have been created. Two of these are certain IT professionals and provincial nominees. The in-demand skills required for the PNP vary from province to province.

The visa application process for Permanent Resident is not simple and straightforward for many. The policies, rules and procedures are changing constantly and are becoming complex. As such, expert advice in the preparation and submission of immigration applications is becoming indispensable to the prospective immigrants.

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An Old Scourge in New Site!

by A.K. Azad, S. Ahmed and M. Hoque

It is clear that trypanosomiasis can be found in wild life. Though wild feline infestation is not available but the literature suggests that infection with *T. evansi* is possible in cats. Moreover there is abundance of biting flies in our region, which play a role in transmitting the disease.

T. brucei, *T. simiae* and possibly *T. uniforme* and *T. suis*; *T. evansi* transmitted human trypanosomiasis (sleeping sickness) describes infections of man in Africa with *T. rhodesiense* and *T. gambiense*; 'Surra' describes infections of animals with *T. evansi* and closely related organism like *T. equinum*; 'Dourine' describes infection of equids (horse and related animals) with *T. equiperdum* and trypanosomiasis of man in America caused by *T. cruzi* is called Chagas disease.

Occurrence tsetse transmitted trypanosomiasis is related generally to the distribution of tsetse flies which are found in Africa between latitudes 14° N and 29° S. However the occurrence of trypanosomiasis within the overall tsetse infested area is irregular because of difference in animal husbandry practices and because of variation in the density of the particular groups and species of tsetse flies which differ in their capacities to transmit the pathogenic (disease producing) trypanosomes. The occurrence of tsetse is also affected by differences in distribution of the pathogenic trypanosomes. *T. evansi* and the closely related organism *T. equinum* causes Surra affecting many species including horse, camel, buffalo, dog, cat, pig, capybara and deer. This disease occurs within a wide range of climate and vegetation in the Middle East, Asia, the Far East, Central and South America and the African north. Dourine, another trypanosomal infection of venereal nature affects horses. It occurs in North and South America, Central and South America, the Middle East and Asian part of former USSR. Chagas disease is an infection of man and several species of domestic animals by *T. cruzi*. Two types of sleeping sickness are recorded: *T. gambiense* cause Gambian sleeping sickness and *T. rhodesiense* cause more acute form of Rhodesian sleeping sickness.

Tsetse transmitted animal trypanosomiasis is associated with increased body temperature and the fever usually persists for several days and the temperature comes to normal.

It is usually followed by further intermittent febrile attacks and remissions of infections. Acute infections may be seen occasionally leading to death after one to three weeks. In *T. simiae* infection (causing diseases in pig) the signs are high fever, respiratory distress and prostration leading to death within 12-36 hours. The clinical features of dourine include vaginal or urethral discharge, a low recurrent fever and oedema of the genitalia. In the mare the swelling of vulva extends to the udder and ventral surface of the abdomen while in the stallion the oedema of the scrotum and prepuce may extend forward as far as the chest. Condition of the animal deteriorates and after some weeks ulcerative plaques 2-10 cm in diameter appear on any part of the body but particularly on the flanks. The animal becomes lame in one or both limbs. The course of fatal form of disease may last from 1-12 months or longer.

The classical disease caused by *T. evansi* in human subcontinent occurs in horses and is known as Surra. Surra is always fatal to horses if treatment is not applied timely. Deaths occur between a few days and a few months depending on the virulence of the parasite. Emaciation and oedema are the most common clinical signs. Urticarial plaques are found with a necrosis at the centre and hemorrhage at the junction of skin and mucus membrane especially at nostrils, eyes and anus. An intermittent fever may be present but in some cases the condition is so acute that this is not obvious. Camels are highly susceptible to infection, the disease running an acute or chronic course, terminating fatally in untreated cases.

An acute and fatal type of disease is usual in dogs in the East, death possibly occurring in 2-4 weeks. Oedema is marked, corneal opacity is common and due to oedema of the cornea. Voice changes similar to that in rabies. Cattle and water buffalo generally act as reservoir of the disease. Nevertheless occasional outbreaks of acute disease occur

with quick death. Signs sometimes simulate anthrax (an acute fatal disease caused by bacteria, high fever and unclotted blood in natural opening).

Diagnosis of acute trypanosomiasis is relatively easy since the organisms are readily demonstrable in freshly stained blood smears. However, the diagnosis of chronic infections may present difficulty because parasitemia is usually low. In such cases thick and thin smears taken on consecutive days or lymph node puncture smear might give better result. Other good laboratory methods of diagnosis include concentration of trypanosomes in peripheral blood by centrifugation and injection of blood samples from suspected cases into rodents.

The drugs commonly used in treating different types of trypanosomes are diminazene (berenil, babesin), quinapyrimine sulfate (antitrypal sulfate), homidium bromide (ethidium bromide), homidium chloride (novidium chloride, baidium chloride) prothidium, isometamedium (samorin) and suramin (naganol, morayin antypol).

Under field condition, the control of trypanosomiasis is chiefly dependent on chemotherapy. To control tsetse-transmitted trypanosomes the long-term control of glossina species (tsetse fly) is necessary. This includes catching and trapping of flies, bush cleaning, fly screen, repellants and similar device and use of insecticides. Introduction of trypanotolerant breeds of cattle are of great value in controlling the disease. Control of *T. evansi* and *T. equinum* is dependent on therapy and elimination of blood sucking flies. Practically fly control is very difficult. Where drainage is possible the breeding places may be destroyed by this method. The flies have a habit of skimming over water and occasionally dipping their bodies into it. It is better to keep the animals away from places where the flies abound during the hot part of the day. Measures similar to those for the control of mosquitoes are applicable. Residual sprays for the inside wall of the animal

houses (where their uses permitted) can be tried.

The first published record of trypanosoma in Bangladesh was in horses and bullocks found by A.K.N.U. Ahmed. A more comprehensive work on trypanosomiasis was carried out by Professor Hafezur Rahman and his co-workers from October 1981 to December 1982 in Dhaka, Mymensingh, Tangail, Chittagong and Chittagong Hill Tracts. He identified five species of trypanosoma from horse, cattle, bats, fowls, doves and rats. Out of 36 positive samples three samples are collected from animals where they produce diseases. One of us, Dr. S. Ahmed identified trypanosome in dog with typical disease symptoms. He and his co-workers identified the parasite as *T. evansi*. Though attempts to trace the source of infection was unsuccessful, two dogs were living in the same household of which one was affected but the other one remained unaffected. Direct smears taken from cattle and goats on neighbouring properties on which death had occurred soon before or after proved negative.

From the above discussion it is clear that trypanosomiasis can be found in wild life. Though wild feline infestation is not available but the literature suggests that infection with *T. evansi* is possible in cats. Moreover there is abundance of biting flies in our region, which play a role in transmitting the disease. Generally most infections are chronic in nature but there are evidences of acute infection also, especially when the group of animals has no experience of previous exposure and the strain of protozoa is a new one. Infection does not always lead to epidemic, even the close contact with animals remain unaffected due to individual resistance. Above all finding of the protozoa in numerous number supports the tentative cause of disease to be the trypanosomes. Primary laboratory findings and review of previous literature show that the chance of trypanosoma infection cannot be ruled out. And if so is the case, then not only the zoo people but also the veterinarians should be vigilant against the coming back of old scourge in new form.

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Bangladesh Cultural Events in Germany

by A Correspondent

A weeklong performance of cultural events from Bangladesh within the framework of Bonner Sommer were held in Bonn, Hardsberg, Bielefeld and Weimar in Germany last month. The events held from 8 to 12 September, were sponsored by the office of the Lady Mayors of the City of Bonn in cooperation with the embassy of Bangladesh. Bangladesh participated in the Bonner Sommer festival for the first time. The 13-member cultural delegation was led by the Minister of State for Youth, Sports and Cultural Affairs Mr Obaidul Quader. The celebrated artist Professor Hashem Khan of the Institute of Fine Arts of Dhaka University, renowned Bengali novelist Selina Hossain and the reputed theatre artist Sara Zaker participated in the gala events, among others. The paintings exhibition of Bangladesh was opened at Rathaus art gallery at Hardsberg on 8 September by Mr Gerhard Lorth, District Mayor of Hardsberg and Mr Obaidul Quader. While inaugurating the paintings exhibition the District Mayor said that the exhibits demonstrated Bangladesh's high artistic standard.

Bonner Sommer festival is an annual event of the City of Bonn which began in May 1971. Every year one or two countries are offered facilities for the presentation of their culture to the people of Bonn. The main purpose of this festival is to introduce the culture of different countries to the people of Bonn. Bangladesh was selected in December 1997 for participation in 1999. In his speech Bangladesh Minister of State said that the war of liberation and emergence of Bangladesh as a sovereign country in 1971 had

a tremendous impact on our creative imagination. Professor Hashem Khan gave a brief resume of the development of modern art in Bangladesh. Ambassador Kazi Anwarul Masud also painted on the occasion. Forty paintings from 20 artists of Bangladesh were on display at the exhibition which drew a large number of connoisseurs.

On 9 September the series of cultural events in Bonn, Bielefeld and Weimar was opened by Mayor of the City of Bonn Mrs Pass-Weingartz at the prestigious chamber music auditorium of the Beethoven House. The auditorium was jam-packed with elite, educationists, high officials, diplomats and expatriate Bangladeshis. In her inaugural speech Mrs Weingartz said that art is the key to the understanding of other people which contributes decisively to the reduction of religious, racist and other prejudices. She expressed the hope that the series of events would not remain an isolated affair and both Bonn and Bangladesh would have the opportunity to continue the cultural dialogue in the years to come. The cultural soiree was presented by Bangladesh artists in traditional, colourful robes. The impressive classical and folk dances were performed precisely by five dancers: Shamim Ara Nipa, Shibli Mohammad, Sohail Rahman, Ipsita Shabnam Sabant and Aupe Karim. The pop singer Kumar Biswajit and his accompanist keyboard player Shawquai Ali Mon enthralled the audience with modern Bengali songs. The entire programme was moderated

by theatre artist Sara Zaker and Deutsche Welle editor Abdullah Al-Farooq.

Seminar on Bengali language and culture was opened by the Bangladesh Ambassador at the house of language and literature on 11 September. It was participated by Mrs Sara Zaker and Selina Hossain. It was followed by a discussion on Bangladesh national poet Kazi Nazrul Islam. A renowned short story writer Hassan Azizul Huq was the main discussant. An exhibition of three hundred books from Bangladesh, both Bangla and English was also held on 10-11 September at the house of languages and literature.

Weimar in Thuringia State is known as the cradle of culture. The name of legendary writers Johann Wolfgang Goethe and Schiller are associated with Weimar. The European Union (EU) declared Weimar as the 'cultural city of Europe' for 1999. In this city cultural troupe from Bangladesh presented songs and dances. The selected elite of Weimar witnessed their colourful presentations. The audience was impressed by the performances of the artists. Earlier, the cultural troupe was received by the Minister of Cooperation with the Federal Government Madam Christine Lieberknecht and Mayor of the city Mr Brankje. The distinguished guests were addressed by the Minister of Cooperation of Thuringia and Counsellor of Bangladesh embassy Mr Mohammad Amjad Hossain.

The performance by the Bangladesh artists and the exhibition of paintings and books have made an overall good impact on the Germans.

TOM & JERRY



By Hanna-Barbera

James Bond

BY IAN FLEMING

DRAWING BY NORAK

HOURS AFTER HIS CHEF'S RETURN TO HIS HOUSE WITH BILL TANNER AND THE POLICE

