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Radiology and epidemics, new and old

Peter A. Rinck

Radiology is the interdisciplinary crossroads for most medical specialties, from traumatology to cardiology. There is one exception: usually, not too many high-technology examinations are requested by the infection wards.

Anyhow, if physicians dealing with infectious patients want to refer one of them to radiology there is always trouble and discussion because, in contagious cases, the x-ray room used has to be closed and disinfected after the examination. Usually, these wards have their own mobile x-ray system and only plain x-rays of their patients are made.

In radiology, therefore, there is not much contact with the specialists in infectious diseases, and often limited knowledge about these diseases exists among radiologists. Furthermore, for those practicing medicine in Europe, the worldwide extent of infectious diseases is difficult to imagine.

One hundred years ago, or even as recent as fifty years ago, the situation was different. In 1892, 21% of the German population died of infectious diseases, in 1920 13.6%. The figure dropped to 0.83% twenty years ago, and to 0.78% in 1987.

In the years before World War I, the slums of London and many other big cities all over Europe were characterized by dirt, drunkenness, terrible poverty, and exploitation. One in three infants died before reaching its first birthday. After the introduction of medical examinations at schools, it was reported that nearly 20% of the children were unfit to be taught because they suffered from worms or other infectious diseases.

Resurgence of tuberculosis

Tuberculosis was one of the foremost and most feared killers. In a treatise on climatic health resorts published in the mid-nineteenth century, the author underlined that at least 25% of the customers of pharmacies suffered from phthisis, i.e. tuberculosis [1]. The author recommended moving to Madeira as a possible remedy.

Improved sanitary and living conditions and better medicines – in particular antibiotics – developed after the First and Second World Wars changed this situation. In Europe and parts of North America the incidence of tuberculosis declined steadily from the 1930s until the 1980s.

Cavities in the lungs may form quite early in tuberculosis. Reading chest x-rays, looking for single cavities or diffuse spread, typically constituted a major, albeit rather boring, daily task for a radiologist 30 years ago. Fluoroscopy and x-ray population screening became a household part of radiology between the 1930s and the late 1970s. At this time, finally, tuberculosis was considered almost eradicated in Europe. Although tuberculosis was no longer deemed a threat to mankind, the disease still remains a marker of poverty and social decline.

Today we once again see a rapid increase in tuberculosis, most dramatically in the big cities of the U.S.A. but also in France, Great Britain, Central and Northern Europe. Tuberculosis is primarily seen in immigrants but also connected to HIV infection. In one Northern European country, 5% of the immigrants proved positive for tuberculosis in the late 1970s, but today that number has climbed to 40%. The worldwide situation looks even worse. The tuberculosis bacterium has infected 1.75 billion people; of the 50 million people who die every year all over the world, two to three million die from tuberculosis. It is the leading killer among infectious diseases. In comparison, “only” one million die from malaria.

As with many other contagious diseases, most cases of tuberculosis occur in developing countries, although it is not a tropical or exotic disease as is malaria. Overpopulation, the lack of water and hygiene in many parts of the world, as well as the general absence of or the failure to realize health programs are the cause of the increased incidence of contagious diseases.

Travelling adds to the problem, but the single most important factor behind the resurgence of tuberculosis is the worldwide spread of AIDS, a disease that is often accompanied tuberculosis infection and of which tuberculosis may well be the first sign.
**Tropical diseases**

It should not be forgotten, however, that there are many tropical diseases. Among those that are almost unknown to Europeans but are not exclusive to the tropics is amoebiasis. Many radiologists are familiar with the name of the disease, but have you ever seen an amoeboma? When performing a barium enema it can look like a carcinoma constricting the colon.

The World Health Organization (WHO) estimates that some 200 million people, most of whom live in tropical and subtropical countries, are infected with bilharziasis, or schistosomiasis. This infectious water-borne disease is transmitted by snails carrying the parasitic flatworm that causes it. Once bilharziasis is established in an area, it is virtually impossible to eradicate – and the disease is on the rise in many regions of Africa.

At least one quarter (sic!) of the world’s population suffers from ascariasis. The roundworm ascaris is the most common cause of jaundice in children all over South America, Africa, and Asia.

The round dance of tropical diseases continues with echinococcosis, trypanosomiasis, typhoid, leprosy, and, of course, malaria. When I attended a course on tropical diseases as a medical student, the professor pointed out that actually most of these diseases are exotic rather than tropical – because they are exotic to us and extinguished in most of Europe. But malaria was found in Italy, southern Switzerland, even in the Baltic States not so long ago and leprosy was well established all over Europe. Geographical names such as Rosenheim, a town close to Munich, are proof of it – it has nothing to do with roses but rather means “leprosarium”.

**Role of radiology**

Let’s return to radiology: Although the diagnosis of infectious diseases is not a primary indication of diagnostic imaging in Europe, radiologists are performing increasingly examinations of immigrants and travellers returning from the tropics. Plain x-rays, ultrasound and other basic imaging examinations are helpful in primary diagnosis and follow-up. CT and MR imaging are useful in the diagnosis of a limited number of these diseases, such as cysticercosis, particularly if cerebral or spinal affections are being investigated.

Sometimes, when you read images with changes or lesions inexplicable to you – and without proper medical history on the referral sheet, you should think twice and ask the patient: “Have you been abroad?”

Patients might not mention recent travels to the referring physician because they may not consider it pertinent. With many parasites or infections there is a delay before symptoms of the disease occur, and I have seen a number of cases where the radiologist directed the referring physician towards the diagnosis of a tropical disease.

In spite of this, radiography or other imaging methods are rarely mentioned under the heading of diagnostics in manuals or textbooks on tropical diseases, such as that written by Bell [2]. Physical examinations and laboratory tests remain the backbone of diagnostics. The major exception is again tuberculosis, with chest x-rays in pulmonary tuberculosis, x-rays of the joints and spine when they are affected, and plain abdominal x-rays in urogenital tuberculosis.

Although x-ray and ultrasound allow the visualization of changes, particularly when they are gross, these modalities do not lead to a concrete differential diagnosis, and in some cases the radiologist can offer the referring physician up to 40 choices. The radiological report thus provides only a small piece in the mosaic of the diagnostic workup.

In Europe and North America AIDS has become the single most fashionable infectious disease for sophisticated diagnostic imaging. CT and MR imaging of the central nervous system, thorax and abdomen to detect and monitor systemic manifestations have become commonplace. Because AIDS is such a ghostly threat in the industrialized world, vast amounts of money have been poured into research, including the development of new imaging techniques. Imaging might even contribute to fighting the disease.

But other epidemics such as tuberculosis, the plague, cholera, and yellow fever are also spreading. According to WHO, at least 29 new pathogenic agents have been discovered in recent years, among them the Ebola virus and hepatitis C. They might become a prominent health issue, even in Europe, because it appears that treatment with antibiotics will become more and more difficult, due to the increasing drug-resistance of some strains of bacteria.
Will there also be a role for radiology, especially high-technology radiology, in the diagnosis of these diseases? It seems unlikely. Exceptions might be in monitoring disease with spiral CT or MR imaging, ultrasound or CT-guided biopsies, and interventional radiology, for instance in tuberculosis.

It is always good to know more about the diseases we do not normally see, first, to be able to recognize them in case we happen to come across patients suffering from them, and second, not to be mentally stuck with the ordinary diseases we encounter every day. Just as common European diseases may be regarded as exotic in other parts of the world, those that European call “exotic” are common elsewhere.

References

Travel broadens the mind. Your horizon widens and when you return, certain aspects of your daily life that were more or less taken for granted suddenly seem provincial and just a small facet of the big picture.

Many of us have experienced an illness during a holiday abroad. Going to a doctor in a foreign country makes you realize that medical treatment varies tremendously, which alone shows that medicine is not an exact science. For example, your cold may be treated with pills in Germany, with inhalations in the U.S.A., or with suppositories in France.

Similar discrepancies exist in diagnostics. Radiological examinations elsewhere are different from how they are performed at home. Even if you only move from France to Germany, you will see variations. In many respects, radiology in Europe is completely different from radiology in the U.S.A.

It is never possible to comprehend the entire picture or to generalize, because unique circumstances exist in different countries, provinces, or even districts. Still, there are certain themes that turn up and keep repeating. These differences originate form the culture, the level of industrial development, and the financial potential of the region.

**Disease spectra**

Trauma amounts to 9% to 15% of all situations where medical treatment becomes necessary, irrespective of where you are in the world. However, in the tropics and the subtropics, infectious diseases constitute the major part of diseases encountered, whereas noncommunicable diseases are less common. This is the opposite of what is found in industrialized countries.

Primary healthcare is not possible without diagnostic imaging. In many cases it can contribute to a quick and accurate diagnosis, leading to fast and adequate treatment. To fulfill these basic needs, medical imaging relies on plain x-rays, and to a limited extent on ultrasound. More sophisticated radiological equipment, such as computed tomography scanners, angiography units or magnetic resonance imaging machines, is of no use for most primary diagnostic imaging questions.

X-ray examinations, at their most simple level, are the most important application of diagnostic imaging worldwide. Cardiac angiography and magnetic resonance imaging, for instance, must seem like games played by pampered radiologists when you are in rural Pakistan or in the Gambia and you only need are chest or skeletal x-rays. Thus, the possession of a simple x-ray apparatus makes all the difference.

It is one thing to have an x-ray machine, however, and quite another to obtain electricity to make it run and to have x-ray films and get them developed.

In daily routine practice in Europe, hardly any radiologist thinks about developing x-rays any more. All developing is performed automatically. An x-ray technician takes care of it, the supply of developer and fixer is assured. When you want to take x-rays in developing countries, you often have quite different concerns. How can you get new processing chemicals where there is no the money to pay for them, and you are in a small tropical village during the rainy season? How do you dry x-rays during the monsoon – or during the hot season without destroying them with dusts and insects that get caught by the sticky surface of the pictures?

These problems are not new, they are is well-known. While to us they may sound simple, unimportant, and even easy to solve, the World Health Organization (WHO) estimates that between half and two-thirds of the world’s population have no access to medical imaging. The WHO has tried to address these issues.

Its Radiology Quality Project and the Basic Radiological System (BRS) developed in the 1980s proved that simple imaging can be inexpensive and give excellent results.
Basic systems

The design requirements for a BRS comprise five main points. The equipment must produce:

1. high quality images
2. in the standard projections, while
3. being safe for both patients and staff;
4. installation, maintenance and operation must be easy, and
5. the equipment must be able to operate with poor electrical supply.

The system includes rechargeable batteries, making it independent. It should be cheap and very easy to handle, allowing the production of excellent x-rays with minimum training and little margin for error.

This kind of equipment which is offered by a number of small and large x-ray equipment manufacturers. Sometimes one wonders why it is only used in developing countries, by the military, and by civilian protection organizations – but not by regular European hospitals. The answer is simple: There is not too much profit to be made by selling basic systems.

Approximately 90% of all x-ray procedures in the developing countries are essentially simple procedures. Health centers and rural hospitals should be able perform out basic examinations like chest, skeletal, skull, spinal, abdominal, and obstetric x-rays and simple oral contrast examinations. Neither a trained x-ray technician nor a radiologist are necessary for such examinations.

Radiologists and trained technicians are essential to carry out work done at the general hospital level and upward which, as minimum equipment requirement, should possess a fluoroscopy unit. Still, many general hospitals in Africa and Asia even lack this, combined with the absence of a reliable supply of electricity as well as films and chemicals.

According to a World Development Report by the World Bank, developing countries could reduce the burden of disease by up to one-third if they spent less on high-technology medicine and more on basic public health and clinical services for the rural poor. The World Health Organization agrees, and the Basic Radiological System constitutes an answer to this problem.

Recently an ultrasound unit has been added and the system has been renamed WHO Imaging System - WHIS. Ultrasound is considered the best possible supplement to plain x-rays in primary care for abdominal and obstetric examination, but as with the BRS, guidelines aimed at the end-user must be followed for ultrasound. Thus, the design requirements are similarly elementary to those for the x-ray machines.

Appropriate help

The desire to help the people and physicians in developing nations is widespread. Giving them some of the bread crumbs falling off our richly laid tables is not only desirable but morally compulsory. In our consumer-driven radiological environment, equipment is out of date after an average of seven to eight years. Why not send it to Africa or elsewhere?

This practice of sending used medical equipment to developing countries as a gift has become a nightmare in many cases. When the big wooden boxes arrive at their destination – if they arrive at all – often it is found out that there is no electricity. When the equipment is sent without accompanying technicians or physicians it can neither be installed nor operated because nobody understands the instructions – or the need for such a machine.

Similar considerations hold for new equipment. There is one well-known example of a country where a brand-new MR machine was bought for the small village where the president was born. It still is stored in the original wooden crates because there is no access to electricity nor to specialists who can install and operate it.

On the other hand, donations to hospitals in the capitals or other big cities are often unnecessary because they have the best equipment money can buy – usually in government, military, or private hospital. WHO officials have attacked the sales of such equipment to developing countries for several reasons: waste of limited resources and dishonest transactions are among them.

Wherever I travel, I hear about questionable practices by the representatives of some companies in developing countries, where lies and bribes seem to be part of the tradition. However, most of the developing countries have an influential and well-educated elite which insist on the best possible healthcare. They
used to fly to Europe or the U.S.A., but with the proper equipment and well-trained physicians, they can get the same quality diagnostics and therapy at home.

They can also afford to pay examination fees which seem low to us but are high for them. In India, there are approximately 60 magnetic resonance imaging systems. Patients are charged 5,000 rupees (DM 250) per scan, if contrast enhancement is needed, they pay another 3,000 rupees (DM 150). This equals one month’s salary of a well-paid professional, and generally, there is no reimbursement by insurance companies.

Throughout Asia, there are excellent radiologists in teaching hospitals, but they all work in big cities to survive. In rural areas, a typical problem is that there are very few specialist physicians, because hardly anybody wants and can afford to live and work there. There is a lack not only of radiologists but also of technicians and trained physicians in general. To solve this problem will be another, probably more complicated task for WHO.

As European radiologists, we may be considered by radiologists in developing countries as “expert first users”, and many of them seek our advice. In such situations, it could be wise to remember that our needs are not necessarily the same as theirs. The best advice is for them to consider precisely their own needs, i.e., first determining what is needed, who will need and use it, where it will be used, and what resources are available. Information about the most appropriate type of equipment and procedures can then be sought.
empora mutantur, nos et mutamur in illis: "Times change, and we ourselves change with them", the ancient Romans used to say. What holds true for life in general, is also true for life in radiology.

The last twenty-five years have brought permanent change and improvement to medical imaging. Diagnostics have become faster and easier with x-ray computed tomography, ultrasound, digital subtraction angiography, single-photon emission tomography, magnetic resonance imaging, etc. Contrast agents have permitted new diagnostic insights unknown and unexpected in the 1950s and 1960s.

Not only did patients and doctors benefit from this development, but a massive medical imaging market that was created, which employed an increasing number of people, and provided huge profits for many companies. In the pharmaceutical industry, profit margins of 50% or higher were common.

The last ten years, however, have also seen permanent changes in internal and external company structures and players in the game. Some companies have disappeared, others have grown, and new ones have entered the marketplace. To remind you of just a few: Technicare and Elscint were taken over by General Electric, Diasonic’s MRI division by Toshiba, and GE’s MR spectroscopy division by Bruker; Picker and Philips merged and split immediately afterwards; Kranzbühler Ultrasound became part of GE; the majority of Kretztechnik Ultrasound is now owned by Medison of Korea; the radiological part of Sterling-Winthrop was bought by Nycomed, which, in turn, became Nycomed-Amersham, then Amersham, just to be taken over by GE. Squibb Diagnostics was acquired by Bracco and Medrad by Schering (which was bought by Bayer). Abbott Laboratories has emerged as a completely new player. This list continues and can easily fill pages.

Many of the small and big pharmaceutical players are for sale – even those considered a as steady as a rock in the stormy seas of the radiological business. It is foreseeable that more contrast agent companies will be taken over by others or just disappear. What happened from the late 1980s until today to the equipment manufacturers is now also happening to the contrast agent companies.

Destabilization of the x-ray contrast media market lies ahead because many patents will expire and some of the new developments seem unlikely to fulfil their promise. The MRI contrast agent market has not taken off as predicted and planned, and the ultrasound contrast media market which was considered the boom market of the next ten years, seems unpredictable after the experience with MRI. In addition, new ideas in nuclear medicine seem to be emerging – and nobody knows how these new products will integrate into the limited contrast agent market.

Thus, although the market is growing as a whole at 5-6% (or more) per year, the pessimists among the forecasters predict that the profit margins will decrease. Consolidation and individual companies’ desire to gain and maintain a larger market share will prevail in the second half of the 1990s and well beyond the year 2000.

On the other hand, there are optimists predicting a doubling of the contrast media market over the next ten years, but they are looked upon with sceptic eyes.

Some years ago, lower levels of profitability placed pressure on the equipment manufacturers which was partly redirected to the radiologists and is felt now by the radiological community. One example: since the companies could not pay any more for expensive commercial exhibitions at meetings, a number of congresses have disappeared or their style has been altered.

Vendors are also responsible for the merger of the two major magnetic resonance societies, the Society of Magnetic Resonance in Medicine (SMRM) and the Society for Magnetic Resonance Imaging (SMRI) into one large organization, the International Society for Magnetic Resonance in Medicine (ISMRM) with one annual meeting instead of two.

Because most radiological conferences depend on the goodwill of commercial sponsors, meeting organizers
have to bend to the new rules, which also include more direct influence upon the contents of formerly “independent” scientific meetings, their speakers and chairmen.

This development, however, has not been welcomed by everybody in the radiological community. There are already two new societies devoted to clinical MRI and cardiovascular MRI.

**From bribery to continuing education …**

There is another aspect with a similar connection. Bribery is a taboo subject, not only in radiology. Usually company representatives shy away from discussing this topic, but everybody knows that it exists. Of course, the boundaries between straightforward corruption and small gifts without direct or indirect compensation are often indistinct.

Fortunately, outright corruption is uncommon in most countries. However, there have been and still are “fringe benefits”, which can mean anything from sponsored travel to the Bahamas in some countries to cash payments in others.

On the other hand, in some respects support from companies has brought major advantages to radiologists and their patients over the past few decades. In particular contrast agent manufacturers have been the most generous supporters of radiological events all over the world. Large parts of continuing radiological education have been subsidized by them – without commercial support continuing education would be extremely difficult because there is hardly any other source to finance it.

Still, the questions remain: Where does bribery start? Should companies support education and training of radiologists? Can company-sponsored training be regarded as corruption?

As long as there was enough money for everybody, these questions were merely rhetorical. All involved got their share.

But as times have changed, so have acquisition and buying procedures. Today, often it is not the radiologist but the hospital pharmacist or one of the local health administrators who is in charge of buying contrast agents, equipment, and accessories – and they, most likely, buy cheapest without taking into account possible training or continuing education of radiologists. If they are asked: “Do you want to pay an extra 10% for x-ray equipment or contrast agents if the delivering company pays for the radiologists’ continuing education?” you can be assured that the answer will be: “No.”

Many radiologists do not want or cannot afford to pay directly for their continuing education or additional training. Residents and radiological specialists all over Europe have profited from the generosity of companies. For some, perhaps for many, these times might be over soon.

Some radiologists are so spoiled by companies that they do not consider paying for continuing education expenses or for educational tools themselves. They rather expect to receive them free of charge from companies. There might be a rude awakening. This will change in the future and the question will arise whether companies will drop these efforts or whether they will expect that their customers pay for educational tools such as books, CD-ROMs and training courses.

Because the power is where the money is, sales strategies in general will change in the future. If hospital administrators buy machines and contrast agents, small gifts will be made to them – there might even be continuing education programs in hospital administration sponsored by equipment manufacturers or contrast agent companies. Better training for them can also be a sales argument. There are already numerous conferences on cost effectiveness sponsored, in part, by the small and big commercial players.

**… and from courtesy research to necessary research**

It takes at least eight to twelve years to develop a new contrast agent; and only one in ten developmental drugs will finally reach the market. The developing costs are somewhere between DM 200 million and DM one billion. Only big companies can afford this because larger research units and larger product portfolios spread the risk of failures in research and development. However, even they have started feeling the pressure.

Many of them have not had a strict enough cost control for R&D. Their R&D was uncoordinated, the development of new drugs far too expensive, and often the resulting products could not be sold. Today, many
companies are trying to cut costs drastically and to reduce development time to six or, at maximum, eight years.

Ten years ago, pharmaceutical companies would perform their preclinical animal studies in the United States, for instance, and their patient studies in Germany. German universities were cooperative, thorough, and fast in running and completing such studies. Today, this has changed. Many countries with established research centers have become too expensive and at the same time too bureaucratic. Applied research is moving out. Clinical and preclinical third party research funds – condemned twenty years ago, heralded as the savior of the academic financial crisis ten years ago – are drying up.

As in production, companies use cheaper countries for research. One hears statements from executives of manufacturers of pharmaceuticals and of medical equipment that clinical or applied studies in Hungary or the Czech Republic can be of the same quality as studies in Germany or Switzerland – but they are usually faster and less expensive. The people involved are said to show more interest and zeal and to be more conscientious than their counterparts at West European universities.

Furthermore, courtesy research will be hard hit in the future.

“You buy my product and I pay you to do some research with it,” will become rare in the coming years since this kind of “research” is a sales tool. Dropping profit margins and the loss of power which the now replaced radiological purchasers possessed earlier will terminate this kind of superficial but “prestigious” research in certain countries.

In addition, even necessary research activities at university departments will be cut. Although companies will increasingly delegate R&D activities and contract research to external institutions, and, in addition, buy results to save money within their own infrastructure, only specialized institutes and companies with an outstanding track record in quality performance and speedy delivery of results will survive in this game.

During the last fifteen years it has become apparent that small companies with 5 - 10 people on their payroll which are willing to take risks and develop new ideas might take over – there are a number of exam-
In 1995, there were 32 major congresses connected to medical imaging – not even counting congresses in Australasia and Latin America. There were hundreds more catering to national, local, and specialized audiences.

The last European Congress of Radiology in Vienna attracted more than 7,000 radiologists and 5,000 commercial people, while 17,000 medical and commercial professionals attended the last annual meeting of the European Society of Cardiology. The Journées Françaises de Radiologie usually bring together some 5,000 radiologists and 9,000 exhibitors and visitors to the exhibition, and Medica in Düsseldorf has more than 100,000 attendees. The 1995 annual meeting of the Radiological Society of North America in Chicago easily draws 15,000 physicians or, in total, more than 60,000 professionals.

Why do we attend these meetings?

To learn and to teach, to buy and to sell. However, attending big conferences is not always a pleasant experience. If you are surrounded by several thousand fellow-radiologists, it usually looks like this:

La ronde commence –
The merry-go-round starts …

In the worst case the nightmare of big conferences starts already on the airplane which takes you to the conference city: it is crowded with fellow professionals and exhibitors. If you are lucky it does not start until you reach your hotel. As soon as you arrive in the hotel lobby, you hear: “Good to see you!” from somebody you definitely did not want to see, stressed as you are after traveling so many hours.

“Good to see you” can mean anything from “I am really happy to see you” to “I did not know that you are still in the business”. Whatever is meant, you have to smile and be polite to the person greeting you. The next morning, you have breakfast at the hotel for US$ 30, even if you have only a cup of tea and a slice of dry toast, and then you take off to the …

Congress venue

Nearly all conference centers are labyrinths, built to confuse participants. Try to find the entrance to the conference center in Nice on a hot summer day – it is always at the other end of the building, all other glass entrance doors you approach are locked; when in London, you will get lost in the empty corridors of the Barbican Center; in Vienna, you will circle around the walled-in center of the Austria Center; at the Porte Maillot Conference Center in Paris, you first learn that the city office of Air France on the ground floor is not in charge of the meeting – but they would happily sell you an airplane ticket to Guadeloupe; when you think you have finally located your event you suddenly realize that you are in the men’s room.

Registration

At the registration desk you receive the obligatory conference folder. This is rarely leather but rather tends to be plastic – and smells plastic –, sometimes it is even paper. Although it looks very fashionable, it can be completely impractical, particularly if the conference program does not fit into it. This folder is meant to carry around the abstract books, but unfortunately it soon breaks and you have to transport the five kilograms of books by hand.

Every pickpocket in town can easily recognize his foreign victims: They all carry a conference folder with the colorful imprint of the 75th International Congress for Imaging the Uvula and Vocal Chords. After your book of proceedings has been stolen, you realize why it has been stolen – the price for a replacement copy is DM 450, or exactly your registration fee.

The opening words in the program reveal that the conference is under the auspices of the ministry of agriculture because the conference president attended school with the minister.

To get an overview of the conference, you open the program booklet and try to find your way around.
The typing font used makes the program look blurry and your eyes start to water. There is no overview and the schedule of the meeting is categorized by topics rather than days. You discover that after day three of topic one, the printed program features day one of topic two. Finally, at the end of the conference, you understand the organizing scheme, but now it is too late because you have missed all the lectures you would have liked to attend.

Some conferences now offer the program and book of abstracts on CD-ROM. This is an excellent solution to the problems mentioned, unless your portable computer does not have a CD-ROM drive or you travel without a computer. Whereas it is easy to read a printed book in your hotel room, without the required equipment it is impossible to get any information out of a CD-ROM at midnight when you start thinking about what sessions to attend on the following day.

The sessions

At many conferences you will suffer from the frustration of parallel sessions, which often cover virtually the same topic, so that you have no idea which one you should attend. You finally decide to listen to neither of them and to go shopping before your colleagues buy all the good stuff.

Once there was this conference for which the program had not been finished when the meeting started. The only printed material available was a preliminary list of participants and a detailed description of the lunch and dinner menus, including the wine list. On the first day of the conference, some of the participants set up the scientific program. Such conferences have the advantage that you never forget them.

Name badges

Another problem is name badges. At registration everybody receives one of them, usually with your own name. Unfortunately, often the names are printed too small to read from a distance, so that you have to approach a person you believe you know but whose name you have forgotten until you are nearly standing on her or his feet to be able to decipher the name – and then, embarrassingly, it is the wrong person.

Furthermore, badges with clips are often impossible to fix on a woman’s dress, they have been developed for men. So you find many women choose to put their badges in their pockets or handbags, hold them in their hands, or attach them at odd angles to their dresses, adding further to the difficult task of finding out their names.

Some people are without name tag, which means: “You should recognize me without tag, I am so important”; some, in particular at congresses in the United States and in Great Britain, have ribbons hanging down from the tags like prize bulls at an agricultural show. Accordingly, the names are followed by all kinds of abbreviations, you have no idea what they mean (MD or PhD is all right, but what is a FACC?).

Message board

At most conferences you find a board to leave messages for fellow participants. It seems that sometimes people leave messages to themselves just that their names are seen on the message board.

Presentation and slides

Nowadays most slides are computer-generated, in seventeen colors with integrated pictures and graphs. Usually they contain too much text and incomprehensible abbreviations. The first speaker presents slides with pink background, the next one with figures even in the background. They all are very sophisticated but have fifty-five orthographic mistakes per slide – sometimes even the title is misspelled.

Although there is a preview room and everybody can check their slides before the presentations, often slides are upside-down or not in the correct order for the talk. I remember one lecture where the speaker appeared without slides; he had sent them by courier mail, but they never arrived. The only thing he could do was tell the audience the airbill number of the shipment.

No speaker stays within the allocated time frame. They can be divided into five different types: the impolite; the inexperienced; the ill-prepared; those who do not know what they are talking about; and chairmen whose talks have been rejected but talk anyway because nobody can stop them.

Fortunately some speakers do not show up at all so that the next session starts only half-and-hour late.
Projectionists

Add to this the projectionists whose qualification for the job generally depends on their eyesight: They have to be myopic so that they cannot recognize whether the slides are in focus.

Language

One of the most embarrassing situations at a conference occurs when a speaker does not speak the language of the congress. I remember a conference in France where a speaker gave a talk on a topic I was interested in. I understood about 50% of what he said and was proud of my French. Afterwards I realized that the speaker had given the talk in English but with an extremely heavy French accent. Real problems can occur when the language bears no similarity to English at all, as in the case of Japanese.

There are participants who not only do not speak the language of the conference but also do not understand it. They usually travel in groups and one of them translates everything for the others. Then little mistakes can happen: “Congenital” suddenly means “friendly,” “enema” is an opponent, “impotent” means “distinguished or well-known”, and “terminal-ly ill” describes somebody who gets sick at an airport.

Poster sessions

If you want to move a little bit around because you fall asleep in the dark lecture halls, you can look at the posters. Since the scientific committee has accepted all posters to boost conference attendance, there are too many of them, and it is impossible to find the good and important ones. Anyhow, it is nearly impossible to concentrate on the posters because you meet and chat with colleagues you know – which brings us to the ...

Participants

As an attendee of radiological conferences for nearly twenty years, I have come to the conclusion that certain patterns are repetitive. You know many of the participants, although sometimes only the faces, not the names. You recognize the big shots, but also some of the other participants.

There are, for instance, ...
Le congrès ne marche pas, il danse ... 

In the evening, you would like to escape the conference. However, what happens?

Cocktails and dinners, or the so-called social events or bar-sessions, which are just a replay of the day. You encounter the same faces, same problems, same topics of conversation – except now your hands struggle with glasses and food instead of books and broken folders. It is impossible to escape.

And finally, as the merry-go-round turns, we reach the return trip: you are sitting sick and sweating on the airplane because of too little sleep, too much food, too much alcohol, and not enough exercise.

See you at the next meeting.

**P.S.** Times have changed and gone even more electronic – which doesn't mean that congresses and attendees or organizers have changed: "It's still the same old story, a fight for love and glory ..."