KAREL RAŠKA – THE DEVELOPMENT OF MODERN EPIDEMIOLOGY. THE ROLE OF THE IEA

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I am extremely honoured to have been invited to take part in the celebration of Karel Raška's 100th anniversary. Let me start by apologising for speaking in English. I am afraid that my knowledge of Czech is no longer good enough to do more than express two or three words like "thank-you", "good day", or "please".

I left Czechoslovakia in 1939 and came to England at the age of ten. Obviously my first priority was to learn English. My parents who came from Teplice-Šenov, could not speak Czech as they were born when Czechoslovakia was part of Austro-Hungary. The only person who could speak Czech in my family was my grandmother who was born in Malešov, and I am afraid she did not come to England, she died in Terezin. Although I continued to try to keep up my knowledge of Czech, while learning English, French and Latin, it fell by the wayside. I used to take lessons with one of my parent's friends who was in the Czech army in Leamington Spa, but when they were moved, obviously these lessons ceased and so my ability to practice and talk in Czech vanished.

I first met Professor Raška at a meeting of the International Epidemiological Association in August 1964 in Princeton. My last meeting with him was in 1971, when I visited Prague and Czechoslovakia for the first time since 1939. I had not returned earlier because of my concern that I might be arrested for not joining the Czech army, even though since 1946 I was a British citizen. However, in 1971, I had some protection, as I came as a WHO consultant.

On arrival in Prague airport I was met by Professor Raška and Dr Roth, who had worked in my department at St Thomas's on 2 occasions. Professor Raška was very adamant that I should come in his car rather than in Dr Roth's car. Dr Roth, being more junior, agreed and we met later. Professor Raška ushered me into his car and apologised that he forced me to come with him, but he said it was important that he brief me about life in Czechoslovakia. He emphasised that the only time that we could speak entirely freely was in his car, since there was no possibility of anyone picking up our conversation. He emphasised that I should not discuss any confidential matter when in my hotel room or discuss personalities, since it would be "bugged". He also advised me that on my official visit next day to the Institute of Hygiene, that I should be careful what I said and to be aware that wherever I went in the Institute, the door would be kept open. Should I look behind the door, I would see a person sitting behind it, taking notes of the conversation. I'm afraid that I was a little sceptical about this, being rather naïve about conditions in Czechoslovakia. However, I found out that he was right! Professor Raška invited me to dinner in his home that night. He warned me that his home was also "bugged". But that did not stop him from talking freely of all that was wrong with his country and his own position. Thus, the advice that he gave was extremely correct and very much to be heeded for one's own protection, but he was fearless in his own comments.

My purpose is to consider the contributions that Professor Raška has made to the development of modern epidemiology. It is important to remember that Professor Raška lived in challenging times. Czechoslovakia became an independent republic in 1918, after the First World War. Thus his early years were spent in a country beginning to establish its identity in the face of great uncertainty and turmoil. This culminated with invasion by Germany, Poland and Hungary of the borderlands in 1938 and full occupation by Hitler's Germany in 1939. The war years were not pleasant for any Czech, and he participated in resistance activities. His involvement in the control of an epidemic typhus outbreak in Terezin is particularly poignant for me.

For the rest of his life, he worked under the communist regime. This was the time of the Cold War between East and West. There were major differences in policies and paranoia about contacts of individuals from the East with those in the West, particularly the United States and the United Kingdom. Those from Russian dominated regimes who had contacts in the West were viewed with some suspicion in their own country. Persons from the East were also treated with reserve by the West. Every WHO office had an individual from an Eastern country responsible for reporting on the behaviour and contacts of his Eastern colleagues. Only those considered "reliable" were allowed, to a small degree, to collaborate with individuals from the West. Those who did so, showed remarkable courage. Raška was a good example of a scientist who had the courage to appreciate that medical science had no boundaries and could only advance through collaboration; infectious agents have no ideological principles and do not recognise state boundaries!! He suffered the consequences of this behaviour, when he returned to Czechoslovakia, after his service with WHO in the early 1970s. It is particularly unfortunate that his enormous achievements in the control of infectious disease over a long period were not acknowledged in his own country and many of his former colleagues and pupils abandoned him and his achievements.

The International Epidemiological Association was founded in 1956 by John Pemberton and Harold Willard. They were research fellows who had met at New York Hospital. John came from Sheffield University, Harold from Yale University. They developed a friendship and realised that there were few opportunities for young individuals working in epidemiology to meet

and discuss their interests. They considered that communication between researchers from different countries would be of help and would encourage and stimulate original work. As a result, they formed an International Corresponding Club. This, very rapidly became the International Epidemiological Association. Its aim was to bring together active individuals from a variety of different departments and places in the world to meet at regular intervals, to exchange views on how to do research and teach epidemiology. They considered that this would improve both research in epidemiology and its application.

Thus the original object of the International Corresponding Club (later IEA) was "to facilitate the communication between physicians working, for the most part, in university departments of social and preventive medicine or in research institutes devoted to those aspects of medicine throughout the world". This was to be achieved by the publication of a Bulletin twice a year, and by members endeavouring to ensure a friendly welcome for visiting colleagues. Many friendships were made and it helped to create a warm atmosphere at its international meetings. It was through the IEA that Raška became known to epidemiologists in the West and was able to present his work. Members of the IEA were greatly impressed by the quality and quantity of epidemiological research undertaken by Professor Raška and were delighted to have him as a founder member. But the Bulletin and occasional personal contact were not enough to keep in touch. So it was decided to organise an international meeting on a small scale. This was done at the Ciba Foundation in London at the end of June 1956. The originators of the Club were very choosy who should become a member. They did not invite any Heads of Departments or medical officers of health unless they had carried out relevant research.

The first international meeting took place at Noordwijk in the Netherlands, in September 1957. 58 doctors from 44 university departments in 20 countries attended and the papers given were published. (Recent Studies in Epidemiology, edited by John Pemberton and Harold Willard, Blackwell Scientific Publications, Oxford 1958.)

Professor Raška participated in this first meeting and gave a paper on infectious hepatitis in families in Czechoslovakia (pages 80–91). He described his long term research on infectious hepatitis and family incidence. He found that spread was considerably influenced by the number of persons in a household and a number of other social factors. There was a difference between towns and villages; the secondary attack rate in village families was double that in families in large cities. Families and schools, or other children collectives, are, in the epidemiological sense, connected vessels. Infection starts either in the school or in the family. The usual anti-epidemic measures should be applied at both places simultaneously and the use of prophylactic gamma-globulin was found to be valuable.

This meeting was supported by the Rockefeller Foundation and the National Foundation for Infantile Paralysis. Of the 58 participants, 54 came from western countries such as the USA, United Kingdom, Norway and Holland. Two came from Yugoslavia, one from Poland and there was one Czech participant. This shows the courage that Raška had to participate in a western scientific meeting supported by what at that time were organisations with a clear capitalist origin.

This meeting was also important for Raška since he met several of the future leaders of communicable disease epidemiology in the western world, including Alex Langmuir, and D.A. Henderson. [Alex Langmuir was Head of Epidemiology at the US Centre for Disease Control (CDC) in Atlanta]. Raška clearly made an impression because a number of comments made to me, and in print, indicated how much they valued his contributions and his participation in this meeting.

The Association met in 1959 in Cali in Columbia and in 1961 in Primosten in Yugoslavia. I can find no record of Raška participating in these meetings, but he was present at the 4th Scientific Conference of the International Epidemiological Association, which was concerned with comparability in epidemiological studies and was held in Princeton in New Jersey in 1964. It was at this meeting that I first really got to know him.

Raška took part in the session on newer surveillance methods in the control of communicable disease, chaired by Alexander Langmuir. Raška gave a paper on basic principles of the control of viral hepatitis which was followed by another paper on hepatitis by D.A. Henderson from the United States. Raška described, in great detail, the elaborate system of surveillance that had been established in Czechoslovakia for infectious hepatitis involving both registration of morbidity, analysis of incidence rates, fluctuation in disease by time of year, mortality rate, a collection of serum, or plasma, stool or urine specimens, liver biopsies in some cases as well as post mortem specimens, assessment of control measures and diagnostic criteria. He showed impressive graphs of how the disease spread, its incidence in various years and the factors that were influential in this. He demonstrated how systematic measures for the prevention of parental transmission of the hepatitis viruses A and B in medical establishments and in out-patient departments as well as blood transfusion service, had an effect.

Raška's talk was followed by D.A. Henderson, who commented "Dr Raška's studies in the epidemiology of hepatitis in Czechoslovakia were known to and respected by all epidemiologists concerned with this major infectious disease problem. No other country or area in the world has documented so thoroughly its experience with hepatitis. The surveillance programme in the United States was cut with a different fabric. Its construction for a variety of reasons differs from that of Czechoslovakia. Comparisons of data have to be interpreted cautiously". Czech studies were far superior and extensive than those in the USA.

Langmuir, who was head of the epidemiology branch of the Centre for Disease Control in Atlanta, Georgia, commented on Raška: "His contribution to the IEA was inestimable. He brought to the Association the views of a highly experienced infectious disease epidemiologist working in Eastern Europe. His support for the Association from his part of the world demonstrated that the aims and objectives of the Association could transcend boundaries and ideologies." He continues that his rates for hepatitis to "our great surprise greatly exceeded those of the USA, and the epidemiological pattern was quite distinctive. Little did we appreciate how important hepatitis B was as the dominant cause of hepatitis in much of the poorer world."

Langmuir noted that Raška had applied and extended the principles of the surveillance of communicable disease for many years. Langmuir was flattered that Raška gave him full credit for the work that he had done in the USA, even though Raška's methods had been used for longer and were much more dynamic and emphasised the role of the microbiology laboratory. From his first meeting with Langmuir they related warmly to each

other. Langmuir's first impression was of a warm personality, great enthusiasm for scientific ideas and a mission to achieve. He deeply believed that the principles of what he termed epidemiological surveillance should be applied world wide. Raška solicited Langmuir's assistance in this goal. Little did Langmuir appreciate his capacity to follow through on these ideas. Raška had been appointed Director of the Division of Communicable Disease at WHO HQ in 1963. Following a number of visits to Africa and Asia he was aware of the shortcomings of the smallpox eradication programme. This had, at that time, not been considered of high priority. In view of Raška's visits he became convinced that only by a concentrated effort could smallpox be eradicated. He convinced the Director General of WHO (Dr Candan) that this was feasible and necessary. To implement this he was able to create an independent unit for smallpox eradication in his Division.

At the Princeton IEA meeting Raška, Langmuir and D.A. Henderson established a mutual regard for each other and agreed to collaborate.

A few months later Karel Raška visited the CDC in Atlanta. He was already the Chief of the Communicable Disease Division at WHO. His object, among other things, was to obtain formal approval from the director of CDC to recruit D.A. Henderson to the newly formed 'Smallpox Eradication Programme' in WHO. He was successful. Karel pushed his vision on a broad front. He persuaded WHO to make epidemiological surveillance the subject for technical discussions to be held at the 21st World Health Assembly in May 1968. Adentokumbo Lucas was the keynote speaker; Jan Kostrzewski (from Poland) was the chairman of the review committee. Both of these were later presidents of the IEA.

Working with Karel closely on drafts and documents and final reports was an experience long to be remembered by Langmuir. His scientific knowledge in the broad field was superb. His command of English was adequate, but it was not his mother tongue. He reviewed every document paragraph with meticulous care. Often he would stop at a line that disturbed him. He would try to articulate a revision, but the right English word was not forthcoming. Sometimes a French word or a Czech word would come out which helped Langmuir not at all. They would then go back for a moment and talk over the main idea in the paragraph. Alex would usually come up with the re-wording of the whole sentence. A broad smile would come over Raška's face. Usually the change was a subtle improvement.

The technical discussions in Geneva in May 1968 were but a prelude to Raška's well orchestrated plans. He organised and secured approval, and budgeted for three major training courses of six to eight months' duration, of key epidemiological personnel in member countries. Half the instruction was to be given in major centres in Moscow, Prague and Rennes. The other half was to be in active field work in Delhi, Alexandria and Upper Volta. Karel Raška organised a one week course to be held in KarlovyVary in mid-August 1968. He brought together a faculty of exponents of surveillance representing all the major communicable diseases of the world. To Karel, surveillance was no subject for armchair philosophical or theoretical discussion. It must be tied inseparably to the specific diseases it seeks to control. His student body was largely chosen from the staffs of the WHO regional offices.

Alex had the pleasure of a quiet supper in his home in Prague on the Saturday evening before the course began. His son, Karel Jr, was there having just returned from his studies in the USA. The Dubček regime was at last succeeding. Optimism was high. Karel's plans for surveillance on a global scale were progressing well. For the first two days the course went with the enthusiasm of pioneers on an expanding front. On the third morning they were greeted with the news of the Soviet invasion and occupation. It was a sad group that left by bus to the border. Following this tragic event, Karel's star became eclipsed.

D.A. Henderson states that he made two further contributions to epidemiology. The first was his enormously successful efforts as a professor, to recruit and train young Czech physicians in the subject. It was apparent to all of us that of the countries of Europe, Czechoslovakia was one of the strongest in epidemiology and contributed a number of first-rate epidemiologists to WHO programmes. Almost all of these were trained by Karel. The second was with respect to the development of the Smallpox Eradication Programme. In 1963, he was appointed to the post, Director of the Division of Communicable Diseases. This was five years after the World Health Assembly had decided to embark upon a global smallpox eradication programme. However, little progress was being made. In major part, this reflected the preoccupation of the Director-General of WHO and most of the senior staff with the global malaria eradication programme and their doubts about the feasibility of smallpox eradication. Although the World Health Assembly had asked the Organization to develop and coordinate activities for smallpox eradication, few resources were being assigned to this effort and, in fact, there was not even one full-time professional person assigned to the programme at the WHO headquarters.

Karel was an enthusiastic advocate of the programme and was determined that more should be done. Indeed, he wrote in 1966, "The increased expenditure in the Smallpox Eradication Programme in developed countries would pay itself back within three years after the achievement of eradication". As interest in strengthening this programme grew, especially in the USA and USSR, delegates from these two countries found a most receptive senior person at WHO and he, in turn, played the vital role in advocacy for the programme. Indeed, it is fair to state that he was one of only two or three senior officials in WHO who believed smallpox eradication to be possible and who actively supported the initiation of a stronger programme – the intensified Smallpox Eradication Programme which began in January 1967. Raška was instrumental in recruiting D.A. Henderson to become head of the programme, and following D.A. Henderson's arrival in Geneva in November 1966, he played an important role in gaining acceptance of a number of vital administrative and policy matters without which the programme could not have succeeded. It was Raška who persuaded President Johnson and his staff to back the programme, linking it to measles eradication in West Africa which was a USAID priority. He extended the smallpox programme to the entire world.

Raška's next appearance at an IEA meeting was in 1971 at a meeting in Poland at Nieborow Palace, organised by Jan Kostrzewski, on developing a guide to teaching methods in epidemiology. Raška was there as an ex WHO staff member. There was one other Czech, two Poles, two Russians and a Hungarian, apart from about thirty to forty contributors from western countries and WHO. He played an important role in the development of a curriculum for the postgraduate education of individuals in epidemiology and

in particular, in the development of methods in the surveillance of disease.

Thus, in conclusion, it has to be emphasised that Raška lived at a difficult time. He had to live with two separate outside influences on his own government: Russia and Germany. The former was at a time when he was a junior, and he participated in resistance to the German occupation. The latter was perhaps more difficult, since it was more subtle and did not involve occupation by foreign troops. This meant that his government did not support many of the concepts that he had. He showed enormous courage in developing his links to scientists in the West, to introducing and developing his scientific principles on surveillance of disease which has survived and still are important now in what we all do in both communicable and non-communicable disease in developing methods of surveillance. His role in smallpox eradication cannot be over estimated. He was the driving force to implement the programme which has done probably more to improve health in the world as a whole than any other single measure. It is unfortunate that Raška's contribution was ignored within his own country and, for political reasons all his achievements in the control of communicable disease attributed to others. Only in the UK did the London Royal Society of Medicine award him some international recognition by the award of the Jenner Medal in 1984. Langmuir and Henderson played a major role in this to attempt to mitigate the injustices of ignoring his accomplishments because of the behaviour of his own government. Let me end by quoting a letter from Lester Breslow. Lester was Director of Public Health in California and Dean of the School of Public Health at UCLA as well as a founder member and former President of the IEA.

Lester Breslow is in his 90's and has recently had a stroke. But he wrote to me when he heard I was coming to this meeting. Lester Breslow emphasised in his letter how much the international community of epidemiology appreciated Raška's immense contributions to world health and how they appreciated his friendship and hospitality. He emphasised that Karel and Helena, his wife and an outstanding medical scientist working in the field of pharmacology, played key roles in bringing Central European medical sciences into contact with that of Britain, the United States and the West generally.

I pay great tribute to this individual who under greatly difficult circumstances, contributed so much and showed such courage in developing and promoting his ideas.