

## Early radiation protection - the Austrian contribution

M. Tschurlovits

Atom institute of Austrian Universities, A-1020 Vienna, Austria

### Abstract

Immediately after the discovery of x-rays and radioactivity, an avalanche of applications and development developed also in Austria. Also immediately, deleterious effects of radiation were observed and hence the precursor of the profession of "radiation protection" was founded.

This paper presents some documents and information on early activities in radiation protection, as done in the countries belonging to the previous Austrian empire. The examples include information on some scientific background on radiation effects at this time, the worldwide first licensing procedure in 1899 and some early environmental radioactivity measurements. A pre-1895 epidemiological study is also shown as well as very early papers associated with the field of RADIOECOLOGY.

### Radioactivity

Pre-1896, the only possible sources of radioactivity leading to an exposure with radiological consequences were daughter products of radium. As we know today, substantial concentration of radon may take place in mines, and a strange disease only among miners was described even some centuries ago. Famous names as Agricola (1500, cited by /1/) and Paracelsus (1567, cited by /2/) are reported. One area with a high concentration of valuable material and hence mining was the region "Erzgebirge" at the border between Saxony and Bohemia, where Bohemia was at this time part of the Austrian empire. Therefore, both the "Schneeberger (Saxony)" and the "Joachimstaler (Bohemia)" "Bergkrankheit, mountainous disease" were found among miners with the roughly the same incidence /3/. The disease remained unidentified until /4/ proved an enhanced incidence of lung cancer is associated with mining. Later, the relation between Radon concentration and enhanced incidence of lung tumours was proved, and numerous papers were considering this question after the discovery of radioactivity

Another very early investigations which might be considered today as roots of "radioecology" were carried out by investigations of radioactivity in air /5/ and water /6/ by scientist who become very famous later. In addition, cosmic rays were also discovered /7/

### X-rays

W.C. Röntgen reported his famous discovery to a few friends before final publication. Among these friends was a Viennese scientist, and the invention was soon published in a newspaper at 5.1.1896. An avalanche of work was developed, mainly in medical application as diagnostics and therapy /8,9/. Obviously, deleterious effects of radiation were discovered immediately and were well aware to the scientific community /10/. This in turn led to the interest of the local authorities to introduce licensing.



