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# The Neglect of Phytoremediation in the UK: A Sorry State of Affairs

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In 2006 a paper was published by the International Association for Engineering Geology and the Environment (IAEG) concerning the history of town gas works in the British Isles [1]. The location of well over twelve thousand such works were identified throughout the UK but many of the older and smaller type were abandoned and do not appear on the lists of gas works scheduled for remediation. The manufacture of town gas, which was the main domestic source of heating and lighting before the advent of natural gas, involved heating of coal and distillation of a wide variety of chemical organic compounds. Many of these bi-products found immediate use in the chemical industry but others, of little or no use, were discarded as effluent into the ground, under or adjacent to gas works. At this time it was not known that many of the discharged compounds were highly toxic and are only slowly decomposed in the soil. However, it is now known that a variety of soil micro-organisms will destroy these compounds over years.

Recent research has discovered that plants will take up a variety of man-made synthetic chemicals which has resulted in the remediation of toxic organic residues in soils [2]. Phyto, from the Greek word denoting plant, is used in the word phytoremediation which amply describes this unique feature of plant behaviour and scientists in Europe and North America are now making considerable use of this discovery. In our laboratory in Cambridge University a novel biological fertilizer has been developed which permits the growth of plants to be sustained over a wide range of contaminated soils [3]. Having demonstrated its effect on acids sulphide mine waste, metal refinery waste and coal spoil we have now focused our attention on soils polluted by man-made organic compounds such as polycyclic aromatic hydrocarbons (PAHs) many of which are known to be mutagenic and human carcinogens. We think that ground polluted with these chemicals when amended with the bio-fertilizer would support plant growth and if past experience is anything to go by the plants should produce a large enhancement in root as well as shoot growth, which would accelerate phytoremediation in such circumstances.

These xenobiotic compounds are ubiquitous in soils in the close proximity of former gas works sites and a recent analysis of material emanating at ground from an abandoned coal mine revealed that sixteen PAHs were present at considerable concentrations; 53% of this group are known carcinogens and several are thought to be human carcinogens. Our university bio-safety officer was concerned about our experimenting with this material under laboratory conditions and it decided to conduct a plant trial on an abandoned coal works site to test the efficacy of our bio-fertilizer. However, this work was not done due to the reluctance of site owners to allow any such work to be conducted on their land.

Such an attitude is hard to understand as conducting these experiments would involve little cost. If it is found that the bio-fertilizer will accelerate the remediation of land contaminated with PAHs then considerable progress will have been made. It seems to me that such and attitude is making an already difficult pursuit more so. This appears ironic particularly when so much attention is given by the environmental agencies to control the pollution of soil.

## References

1. Hatherway AW, Doyle BC (2006) Technical history of the town gas plants of the British Isles, IAEG. The Geological Society of London.
2. Burken JG (2003) Uptake and Metabolism of Organic Compounds: Green-Liver Model. In: Phytoremediation Transformation and Control of Contaminants, Stephen C. McCutcheon, Schnoor JL (eds.), Wiley-Interscience, Missouri, USA.
3. Leggo PJ (2017) The Organo-Zeolitic-Soil System: A New Biological Approach to Plant Nutrition. International Journal of Agricultural Science 2.

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