The price the Radium Committee have at present fixed for emanation is 4d. per millicurie for free hospital patients and 1s. 6d. per millicurie for private patients.

If the result of the method which I have been employing appeals to others the cost of treatment will be less and more patients can be dealt with.

Emanation is so valuable that I endeavour to keep it in constant use until it is practically exhausted. For instance, in a case of cancer of the cervix uteri with involvement of the vagina, I have used an initial dose of 24 millicuries in six needles for four days. I leave them in the first position—usually the posterior lip, as it is the hardest to get at—for twenty-four hours, in the anterior lip for thirty hours, and, lastly, in the vaginal wall for forty hours. The emanation will be reduced by that time to twelve millicuries, so that the patient would receive an average dose roughly equivalent to 18 milligrams of radium for ninety hours, or 1,620 milligram hours. I have then used the same needles for malignant glands, or a large rodent ulcer, for two days, and for a small rodent ulcer for two more; so that the capillaries are in constant use for eight days, until only five millicuries remain. Frequently, when treating such a structure as the cervix, I collect the capillaries a week old into a cannula and insert it into the os uteri, using them for three or four days longer.

From the practical point of view, needles are most convenient to work with, as they are so easily inserted, withdrawn, and reinserted. They give great facilities for suiting the requirements of a case. For instance, a row of needles placed close together enables the thorough and systematic radiation of a growing edge, which is often of vital consequence when an important structure tends to be invaded. The dose, which of course is a matter of experience, is under perfect control. A short capillary and needle is used for the tonsil, or palate; long ones for a large tumour. The risk of over-exposure is at a minimum when only small quantities of emanation are used in each needle, as there is a considerable margin of safety in the length of exposure. It is somewhat like comparing the latitude of exposure which is permissible in taking a photograph in very strong sunlight and in a dull diffuse light—in the one case the exposure must be measured in tenths of a second, while in the other half a minute might not make any great difference.

The exploring needle is charged by slipping the capillary glass tube containing emanation into it, and then placing the needle in a dish of melted hard paraffin. The needle is taken out, its outside wiped and the paraffin allowed to set inside. The needle is then examined with a fluorescent screen to make certain of the position of the capillary, which should be towards the sharp end, and to see that it has not slipped out, as sometimes happens with a new needle. I use a glass tube of willemitite to see the glow, but have found that the needles immersed in boric or carbolic lotion, or if placed on a white marble slab, will show fluorescence also.

The needles are then inserted into the tumour parallel to one another and not more than one inch apart, usually a good deal closer. The length of time for which the needles are left in depends on the size of the tumour, the amount of emanation in each capillary, and their distance apart, but is independent of the number of needles used if the area is correspondingly larger; because using more needles at the same distance apart simply means that a larger area is being simultaneously treated.

The different localities in which cancerous affections have been attacked shows how convenient the method is. I have used emanation needles in growths of the floor of the mouth, tongue, tonsil, pharynx, palate, antrum of Highmore, orbit, frontal sinus, glands in the neck, abdomen, vagina, and cervix uteri. No surgeon would have had any hesitation in saying that the cases I have treated were quite beyond operative interference, and indeed they were sent to me, as a last resort, to see if, by radium treatment, anything could be done to relieve their distress. Under such circumstances, and with this small amount of radium available in Dublin, it was hopeless to expect dramatic cures; but it is a great satisfaction to me to have been able to bring about the local and general improvement, prolongation of life, and relief of pain exhibited in practically every patient treated.

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SMOKE AS A FACTOR COMPLICATING CARBONIC OXIDE POISONING IN COLLIERY DISASTERS.

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It is well recognized that, following explosions of fire-damp and coal dust, and underground fires, the chief danger lies in the in-breathing of CO. For this reason, much attention has been directed to the symptoms and treatment of CO poisoning.

It is also true that many divergencies in the symptoms of CO poisoning have been observed from time to time, and that these have rightly been attributed to the admixture of other gases.

But the part played by smoke, produced at the time of the explosion, or fire, does not appear to have met with the consideration its importance deserves. In addition to CO and CO₂, smoke contains numerous irritant gases, comprising sulphurous and nitrous fumes, acetic acid and ammonia. These dangerous and irritant gases when met with, especially as a result of underground fires, in dense volumes in a confined space give rise to immediate symptoms of a profuse running at the eyes, and coughing, accompanied by a sensation of choking.

These immediate symptoms may give place to those of CO poisoning, if the latter gas has been inhaled, and may thus become virtually masked in the more evident state of CO poisoning.

The irritant gases present in smoke, however, when inhaled under such circumstances, produce after a certain lapse of time, generally a few hours, a well-marked remote effect upon the lungs. In the more fortunate cases bronchitis is superadded to the symptoms of CO poisoning, but in severe cases acute oedema of the lungs, or even bronchopneumonia, may develop.

The development of these complications may naturally increase the dangers of CO poisoning very considerably, and cases are on record in which the greatest difficulty has been encountered from this cause.

That these complications are due to the action of the irritant gases present in smoke is abundantly proved—first, by the fact that in cases of CO poisoning uncomplicated by smoke pulmonary symptoms, such as have been described above, never develop; secondly, that in those cases in which the pulmonary symptoms described have developed there is an invariable history, when such is obtainable, of exposure to smoke; and, thirdly, that in cases of poisoning by nitrous fumes following the use of explosives, whether in the mine field or on the battlefield, precisely similar pulmonary symptoms are met with.

Since the irritant gases present in smoke are freely soluble in water, it might be advantageous to emphasize the value during exposure of tying a wet cloth over the mouth and inhaling through it, and at the same time to point out the fallacy of employing a dry cloth for the same purpose.

THE *Medical Record* of January 30th notes that over two years ago Dr. Little described a form of neuritis rather common in Newfoundland and the coast of Labrador, where many of the natives live on a restricted diet consisting to a great extent of highly milled white flour. He was of opinion that the disease was true beriberi, and more recently Ohler, in the *Journal of Medical Research*, 1914, reports experimental results that bear out Little's conclusions. Chickens fed exclusively on white bread, either with or without yeast, hominy or milled rice, developed polyneuritis gallinarum within six weeks. It is not settled that this disease is identical with beriberi in man, but it would seem that the two conditions are sufficiently alike in their course and etiology to permit of satisfactory conclusions. Control experiments indicated that Ohler's conclusions were worthy of acceptance. The evidence would indicate that white bread as a sole article of diet is undesirable, as it lacks the necessary vitamins.