

28th July, 1934.

Memorandum of Possible Industrial Applications arising
out of a New Branch of Physics.

It is possible to indicate methods which might be successfully applied for the purpose of liberating atomic energy. It is not possible to foretell with certainty that these methods will be successful, but the experiments necessary for ascertaining this are fairly simple and could be carried out on a small scale in the university laboratories. Should such experiments give favourable results, the production of energy and its use for power production would be possible on such a large scale and probably with so little cost that a sort of industrial revolution could be expected; it appears doubtful, for instance, whether coal mining or oil production could survive after a couple of years.

I have applied for a group of patents in order to obtain patent protection for those methods which seemed to me promising, and it appears that these patents were successful in foreshadowing the latest developments in physics.

They include, for instance, methods for the artificial production of radio-active bodies based on a process which recently has been discovered by Fermi. The production of artificial "radium" for medical purposes based on these processes seems to be a sound commercial proposition, but it would be sidetracking the issue to concentrate on this point.

Facilities are required for two different purposes:-

1.) In order to develop and maintain a group of valid patents £500 are required for the next year, which would also take care of administrative expenses connected with the maintenance of the patents.

2.) If we wish to start the necessary experiments one ought to secure the continuity of work for two to three years. It is not possible to state exactly what facilities will be required as this will depend to a large extent on what facilities will be provided by the university laboratory which would be used as a frame for this work. It would, however, be advisable to have £2,000 available for expenditure that may be incurred.

From the point of view of a financier who could consider contributing to the required facilities the position is this:- the chances that the envisaged experiments will yield a favourable result may be estimated to anything between 1 to 20 and 1 to 5. The value of the return in case of success is, of course, enormous and could hardly be estimated in terms of money, so that from the purely financial point of view it is a sort of lottery with a fairly good chance to win a prize and enormous prizes. Yet it would be highly preferable to get financial support from quarters that would consider the experiments as a research work in the field of science which has a good chance of highly significant industrial applications, and realise that the exploitation of discoveries of this scope must not be organised on a purely commercial basis.

But Difficulty will undoubtedly arise from the fact that it is not easy for anybody to form an independent opinion of his own on the merits of the case. A possible way out would be, to get the opinion of some of the professors of the University of London who are working themselves in this field, and with whom I can easily keep in touch on the matter.