

RADIUM MARVELS.

It is announced that the Scientific Committee of the Radium Institute have discovered that the gas given off by radium is as efficient as pure radium for curative purposes. The problem of cost seems thus to be solved, for the institute is already supplying the emanation in hollow plates and glass tubes to medical practitioners at comparatively trifling charges. The institute also supplies water impregnated with radium emanations, which is proving of distinct therapeutic value.

Dr. Lazarus Barlow, the director of the Cancer Research Laboratories at the Middlesex Hospital, has recently stated in the Press:—

"I do not claim to have any knowledge with regard to disease other than cancer, but radium is so powerful, and medical literature contains so many instances in which beneficial results in various diseases have been reported by competent authorities, that I see no reason to doubt that this form of treatment is destined to have important results in other branches of medicine and surgery.

"I am perfectly convinced that the future treatment of cancer is closely bound up with radium, though we still have to learn very much concerning the way in which it acts and the degree of advantage which it will confer, and this experience alone can teach us. With the best wishes in the world, our hands are tied and our future progress handicapped by the fact that we have at present only just about enough radium to treat effectively one patient per day."

Dr. Hugel, writing in the Berlin *Medizinischen Klinik*, a scientific paper, announces the use of radium mesotherium rays as a cure for deafness. He says it has been entirely successful even in hopeless cases, and with one milligram of mesotherium an immediate improvement has been attained, lasting for one year.

Germany is unmistakably in the throes of investigation over radium and mesotherium as a cure for cancer. Various State Governments, municipalities, universities, hospitals and private philanthropists are competing to secure supplies in as large quantities as possible.

The four German factories which, it is said, are at present the only ones capable of producing mesotherium, state that deliveries cannot take place for over a year. Their entire production between now and December, 1914, was long since definitely disposed of.

The Prussian Government will provide for £25,000 for purchase of radium and mesotherium in the forthcoming Estimates.

OUR PRIZE COMPETITION.

HOW IS MEDICINE INTRODUCED INTO THE CIRCULATION?

We have pleasure in awarding the prize this week to Miss J. G. Gilchrist, Gilmore Place, Edinburgh.

PRIZE PAPER.

Medicine is introduced into the circulation by absorption through the three chief media: (1) the alimentary tract, (2) the skin, (3) the lungs.

The methods of introduction through (1) the alimentary canal are by *the mouth* in the form of liquid mixtures, pills, powders, cachets containing powder, tabloids, gelatine capsules, palatinoids. By *the rectum* in the form of suppositories and in liquid enemata. (2) Through the skin by inunction in the form of ointments, and in medicated baths. Through the subcutaneous structures of the skin in the form of hypodermic injections. (3) Through the lungs by inhalation in the form of glass capsules which may be crushed, and by steam vapour rising from fluids medicinally treated.

Medicines are given with the object of preventing, curing, and alleviating disease. The majority are given by the mouth, and are readily taken into the blood-stream through the capillaries and mucous membranes of the stomach and intestines; from thence they may be conveyed to any special organ for which the specific action of the drug may be intended. By the different forms in which drugs are composed and administered, their action can be controlled to operate on a particular point and at a particular time.

Medicines may be introduced into the circulation in a highly concentrated form when immediate action is desired. When introduced subcutaneously by hypodermic injection, usually in the forearm, the action is quick and sure, being evident in from one to three minutes. Highly concentrated medicines are used mostly for the relief of pain and in cases of vomiting; some such are morphine, apomorphine, strychnine, and digitaline in the form of discs. Another form of drug acts on the respiratory system, such as nitrate of amyl, in glass capsules, which are crushed into a handkerchief and inhaled, thence becoming absorbed into the blood-vessels through the lining membrane of the air sacs of the lungs and bronchi. To produce a quick action of the bowels in demented and refractory patients, a potent drug, such as croton oil, may be given by mouth, one drop of which quickly produces the desired effect.

Medicines may be composed of one drug in dilution, or a combination of several, as in a

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