

extremely emaciated, weighing less than 4 stones; pulse-rate usually about 160; temperature pyrexial; mental condition one of delirium at night and obtundation during the day; and all the usual symptoms of the most severe type of Graves's disease were present. Although under good conditions at her home she had been steadily getting worse and had been altogether confined to bed for several weeks. I had every reason to consider the prognosis as extremely grave indeed. I have not hitherto seen a case of Graves's disease in that stage end otherwise than fatally. I ordered her to have an ounce of rodagen daily. The improvement of her condition which soon took place was most striking. The acute symptoms all subsided, her mind became clear, her temperature dropped to normal, the heart's action considerably slowed down, the tremors ceased, and in a few weeks she gained a stone in weight. In spite of the fact that her recovery has been interrupted by one attack of influenza and another of quinsy she has done remarkably well.

If I had the choice of giving rodagen or the fresh milk of a thyroidectomised goat I should not hesitate to select the latter from which rodagen is derived. But I consider it is a great matter that it is possible to prepare from the milk a substance like rodagen which possesses similar beneficial properties to those of the milk itself. Rodagen is readily obtainable at a price, but the fresh milk of a thyroidectomised goat is not to be had by most of our patients for either love or money. The main drawback, indeed, to rodagen is the usual disproportion between its cost and the purse of our patient. It is one of those remedies which, as I have said before, few except hospital patients can afford to use. It is its high price which makes us inclined to dole it out even to our hospital patients when we should otherwise give it freely. Wholesale it at present costs between 3s. and 4s. an ounce. The only other drawbacks are its somewhat unpleasant cheesy smell and taste and an occasional tendency to purgative action. But some might raise the same objection to the use of goat's milk.

I may say I have not given more than an ounce a day in any case, but I believe smaller doses than this are not of much use in the presence of severe symptoms. I have previously stated that although I have made an extensive trial of Merck's antithyroid serum, which is prepared from thyroidless rams, I was not convinced that it exerted any beneficial influence. It is quite possible that if I had tried it in larger doses than I did I might have obtained some good results. All I can say about it is that in the doses ordinarily prescribed it seemed to me inert. I did not go beyond a dose of five cubic centimetres daily. This remedy is also expensive, ten cubic centimetres costing about 5s.

I should like to add to what I have said about rodagen that in cases of Graves's disease lately I have not been giving ordinary milk except in such small quantities as are usually taken with tea or coffee. If, as present observations indicate, there be a virtue in the milk of a thyroidless animal, and in the rodagen obtained from it, by means of which the toxin of Graves's disease is neutralised, this is likely to be counteracted if at the same time we gave in any considerable quantity the milk of an animal whose thyroid was in full functional activity. Recently I have been allowing not only little milk but also little meat to my patients with active Graves's disease and I believe this has been of benefit to them. In conclusion I should like to suggest that it might be possible to put up in tins condensed milk made from the milk of thyroidectomised goats, but I am afraid the remedy, however prepared, will continue to be expensive.—I am, Sir, yours faithfully,

HECTOR MACKENZIE, M.D. Cantab.,
Physician to St. Thomas's Hospital.

Jan. 27th, 1908.

LIQUID AIR AND CANCER.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Jan. 25th Professor J. E. Salvin-Moore and Mr. O. E. Walker relate some observations they have made on the effect of exposing the cells of a carcinoma to the temperature of liquid air for 20 to 30 minutes. In the same issue the importance of these observations is emphasised by a second communication, in which they are confirmed by Professor Salvin-Moore and Dr. J. O. Wakelin Barratt for another carcinoma. The authors express surprise that the substance of tumours so treated gave rise to growths when implanted into healthy animals. The conclusion that the proliferation of the parenchyma cells implanted is responsible for the parenchyma of the daughter tumours would seem, in the

opinion of the authors, to be laid open to doubt as the result of their application of what, in the absence of any reference to the literature on the subject, has the semblance of an experimental method new in cancer research.

That cancer cells may retain their vitality after long exposure to low temperatures has long formed part of the common stock of knowledge of those engaged in experimental cancer research. Two years ago Ehrlich obtained continued growth after an exposure to -10°C . lasting two years, and also after an exposure to the temperature of liquid air 144 times as long as that employed by the authors of the two communications referred to. Michaelis has obtained continued growth after the cells had been exposed to the temperature of liquid air for half an hour three years before the repetition of a similar experiment has yielded a result so surprising to Professor Salvin-Moore and his two colleagues.

There are many other references to the effects of thermal agencies in the literature of experimental cancer research, to which I need not refer in detail, since the two authors cited dealt specifically with the temperature of liquid air, and support the views advanced by Jensen, Murray, and myself on the processes at the site of the implantation of cancerous tissue. It will suffice to point out that exposure to thermal agencies is a routine laboratory method used to diminish the vitality of the cells of malignant new growths, and that with the extinction of the life of the cancer cells inoculation ceases to be successful. Although exposure to thermal agencies is a valuable method for studying the *vita propria* of the cancer cell, it is, for the reason just stated, unsuited to settle whether or not there be a virus in the tumour substance. The results of the cytological study of the site of inoculation in conjunction with this method have been found to be in entire agreement with the view that the artificial propagation of cancer is an actual transplantation of living cells which are merely nourished by a succession of new hosts.

I am, Sir, yours faithfully,

Jan. 27th, 1908.

E. F. BASHFORD.

SUFFOCATION BY COMPRESSION OF THE CHEST: THE BARNSELY DISASTER.

To the Editor of THE LANCET.

SIR,—The sad accident at Barnsley whereby some 16 children lost their lives presents some features in common with the one at Sunderland in 1883 when nearly 200 lost their lives. In the present instance a large number of children were endeavouring to force their way into the gallery of the public hall to witness a cinematographic entertainment. On the gallery being completely filled the children on the stairs were turned back by the attendant and told to make their way to other parts of the house. A stampede then occurred on the staircase, several of the little ones fell at a turn in the stairs and others fell upon them, the whole being kept from regaining their footing by the pressure of the children behind. Before they could be extricated 14 children of an average age of six years lost their lives and two more died very shortly afterwards in hospital. Those who recovered seemed to have sustained surprisingly little injury. Out of the 16 killed and 17 slightly injured, attended to at the Beckett Hospital, only one sustained a fracture—viz., a fractured humerus. This, of course, may be accounted for by the greater flexibility of children's bones, especially the ribs. The children seen immediately after death presented practically the same features as described by Dr. Lambert in 1883 in his report on the disaster at Sunderland.¹ In varying degree their faces were congested and puffy, the vessels of the neck much swollen, the eyelids closed, the eyeballs protruding, the pupils widely dilated, and froth surrounding the mouth and nostrils. In nearly all the cases urine had been voided and in a few cases faeces expelled.

By order of the coroner a careful and individual examination of the whole of the bodies was made 24 hours after death and in the case of two bodies post-mortem examinations were made by Dr. Hall and Mr. V. K. Blackburn. The external examination presented the following features. Rigor mortis (probably influenced by the cold) and post-mortem staining were well marked in all cases. With one or two exceptions the countenance was placid as if in sleep, the eyeballs were not protruding nor the pupils widely dilated. In three cases the face was markedly congested, the remainder varying from slight frontal suffusion to slight general congestion. The ears in all cases were much darker

¹ Brit. Med. Jour., vol. i., 1883.