H.R.H. the Duchess of Teck has consented to open the new building of the Paddington Green Children's Hospital, on July 1st, at 4 p.m., and to receive purses and contributions to the rebuilding and furnishing fund. It is proposed that the presentations should be made by the children friends of the collectors.

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The General Medical Council during its session in London received a deputation from the Lancashire and Cheshire branch of the British Medical Council, who were anxious to present the views of that body upon the question of the registration of midwives. They asked the Council to withhold their sanction to any form of certificate or diploma issued to so-called midwives, other than such as testified to the ability of the holder to act as a midwifery nurse. And they further asked the General Medical Council to declare infamous, in a professional respect, the conduct of those registered medical practitioners who continue to deliver unauthorised lectures on the science and art of midwifery, to other than registered medical students.

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At the annual meeting of the subscribers to the Belgrave Hospital for Children, the Duke of Westminster presiding, the report of the Committee was so satisfactory that they were enabled to announce an income which had slightly exceeded the expenditure. By this surplus they were enabled to discharge a small part of the liabilities which had for some years been hanging over the Institution.

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Miss E. M. Beachcroft, Member Royal British Nurses' Association, and late one of the lecturers of the National Health Society, has opened a Medical and Surgical Home at Ethelbert Crescent, Margate. She is prepared also to receive convalescents, but not infectious or mental cases.

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Commissioner Cadman, of the Salvation Army, is calling the attention of the public to the fact that the sales of "Darkest England" matches are very unsatisfactory. The factory was started in the interests of the match-girls, and as a protest against the manufacture of the so-called "murderous matches" which produces the horrible result of "phossy-jaw" in so many of the workers engaged in such production.

Science Notes.

VEGETABLE PHYSIOLOGY.

The more closely the processes going on in the living plant are studied the fewer differences there appear to be between the animal and vegetable kingdoms. We are not now referring to those microscopic living beings which biologists cannot include in (or perhaps one should say, cannot exclude from) either kingdom, and which are therefore claimed by both zoologists and botanists, but to the more highly organised among animals and vegetables respectively.

It is only natural that the study of animal physiology should have preceded that of vegetable physiology; it is more important from the point of view of medicine, and it perhaps presented fewer initial difficulties.

It has been customary to regard the processes of nutrition in the plant as altogether simpler than those in the animal. It is true that the plant absorbs less complex materials than the animal, but inasmuch as these have to be worked up until they resemble the more complex food of animals before they can be utilised in the formation of protoplasm, the physiology of the plant includes more than that of the animal.

It has often been pointed out that we are dependent for our food supply on this power possessed by plants of working up inorganic into organic substances. Even animals which are wholly carnivorous are equally dependent on the metabolism of plants, since the animals on which they prey are herbivorous themselves or use herbivorous animals as food.

Take the element carbon as a particular instance of a substance required to build up protoplasm, and therefore necessary to ourselves and to plants. We obtain our carbon largely in the form of sugar. The plant uses the same carbon compound, *i.e.*, sugar, but it manufactures sugar from the carbon contained in the carbon dioxide of the air. This process is characteristic of all green plants, but is found in no animal, so that the animal depends on the plant for carbonaceous food, and the plant in manufacturing such food also decomposes the carbon dioxide of the air and returns a corresponding volume of oxygen, thus rendering the air fit for respiration.

Having built up its carbo-hydrates, fats and proteids from materials derived from the air and the soil, the plant proceeds to digest them by means of ferments similar in action (if not in actual composition) to those occurring in the digestive juices in animals. In the plant, as in the animal, there are ferments to convert starch into sugar, to render proteids soluble and to decompose fats respectively.

The action of the above ferments has been more particularly studied in the case of seedlings. In such a seed as a grain of wheat or barley we can distinguish the minute plant or embryo, and beside it a store of carbo-hydrate and proteid food. This reserve of food is provided by the parent plant in order to enable the embryo to start its growth, since it cannot manufacture its food after the fashion of a mature plant until it has developed green leaves and roots.

In the case of barley it has been shown that the relation between the embryo and the food or endosperm is that of a parasite to its host. With great care an embryo has been removed from its own endosperm to that of another grain and has developed satisfactorily. A barley embryo was fostered by the endosperm of a wheat grain with a certain degree of success.

It has been a matter of discussion as to whether the digestive ferments arise in the embryo or in the food material. Experiment seems to prove that both conditions are possible, since a barley embryo has been nourished in a mass of starch artificially prepared, and also a grass endosperm has had its substance removed in a soluble condition by an artificial embryo. The latter experiment is an especially interesting one. It was found that the endosperm of grass, from which the embryo was removed, when placed in favourable conditions of warmth and moisture, suffered a change, due to the presence of a ferment. The conversion of the starch appeared to be checked, however, by the accumulation of sugar, so a plug of plaster of Paris was substituted for the embryo with the object of removing the products of fermentation. With this addition the conversion went on more rapidly. So energetic an absorbent was this artificial embryo that when it was placed against the opposite side of the endosperm to that occupied by the real embryo it succeeded in starving the latter.

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