

In speaking to the Nurses specially, the lecturer drew their attention to the battles that had been and were being fought on their behalf, and stated that in her opinion, Mrs. BEDFORD FENWICK had done more than any other living woman to raise Nursing from a most degraded calling to a noble profession. She then gave an account of the fine exhibits at Chicago of Nursing, Hygienic, and Sanitary Appliances, including admirable models of tenement houses and artisan's cottages, entirely the work of women, arranged by Mrs. Fenwick.

In conclusion, she sketched briefly the scheme originating with Lady PRIESTLEY, for the introduction into all public, private, high schools, and colleges for girls, of a thorough and definite teaching in Personal and Domestic Hygiene—the most important of all knowledge for future wives and for the mothers of the race.

Miss KENEALY carried her audience entirely with her in her expressed views on the importance of women being appointed Workhouse and School Inspectors, and she highly commended to the community Miss BALGARNIE'S proposition with regard to the appointment of Matrons at every Police Station in the country.

Science Notes.

A NEW ANIMAL CALORIMETER.

INTENSITY of heat is measured by a thermometer, but amount of heat by a calorimeter. It is evident that if two masses of water, one a pint and the other a quart, are at the same temperature, the larger mass possesses twice as much heat as the other; also that a pint of water at 100° possesses the same amount of heat as a quart at 50°. Hence amount of heat is measured by calories, one calorie being the heat sufficient to raise a cubic centimetre of water 1° centigrade, or 1-10th of a cubic centimetre 10°, or 10 cubic centimetres 1-10th of a degree.

The physiologist is concerned both with the intensity of animal heat as shown by the thermometer, and also with the amount of animal heat produced in a given time as shown by the calorimeter. The former instrument is, of course, in constant use for clinical study, whereas the latter, from its nature, is not suitable for such use, although it might often furnish results of great value. The amount of heat produced by the body in a given time varies according to circumstances. It is least during sleep; while the body is at rest during waking hours it is two-and-a-half times as great; with moderate movement it is increased to four times the amount during sleep, and with active exercise to six or eight times as much. Yet under all these varying conditions the temperature of the body differs very slightly; if more heat is produced, more is dissipated by the increased supply of blood to the skin, the blood being reduced in temperature by its nearness to the surface. Even though the temperature of the air may exceed that of the blood, still an increased cutaneous circulation results in the lowering of the temperature of the blood, for

more moisture is filtered off from the blood, and the evaporation of this reduces the temperature of the air in immediate contact with the body. When the body temperature rises above the normal, as in fever, it may be due to increased heat-production or to diminished heat-dissipation, or to both factors.

The usual form of calorimeter is a box with an inlet and outlet for the air, and surrounded on all sides with a measured quantity of water between double walls. Outside the layer of water is one of felt or some other non-conducting material. When a cat or dog is placed in the air chamber the heat it produces gradually raises the temperature of the water in the outer chamber, and by reading the temperature of this by thermometers placed therein, the number of calories given off per hour may be obtained.

The principle of the new calorimeter is different. It has two copper chambers, in one of which the animal is placed, and in the other a jet of hydrogen is burnt. As the temperature of either chamber rises, it tends to expand the air, and so increases the air pressure. Both chambers communicate with an oil gauge, so that if the temperature of one is higher than that of the other, the former displaces the gauge by the greater pressure of its air. In using the apparatus the gauge is kept at rest, as far as possible, by raising or lowering the hydrogen flame so that it shall balance in its heat production the animal's chamber. Thus by measuring the quantity of hydrogen consumed in a given time, the animal heat produced can also be determined.

Notes on Art.

THE GRAFTON GALLERY.

FAIR WOMEN.

It was a happy idea of the Directors of the Grafton Gallery to gather a series of pictures representing the portraiture of Fair Women. The first three galleries have been arranged with a general idea of chronological sequence; but more than this appears to have been impossible to effect, as too rigid accuracy in arrangement was found to be incompatible with anything like symmetry or harmony in the grouping of the pictures. It has been pointed out that as there are included certain pictures of women who are possibly more interesting as historical personages for their wit or for their influence than for their beauty, some exception may be taken to the title of the Exhibition, but the Directors in justification gallantly point out that in the eyes of some one person, at least, almost every woman has been considered fair.

We fear that most beholders will hardly consider the lady represented by No. 1 to be fair; the picture is, however, most interesting as being one of the earliest known portraits. It was found in Egypt in a mummy-case, and is believed to date from the second century of our era. It represents a brunette with waved hair arranged in a manner which, strangely enough, is adopted at the present day, and the whole is so fresh in colour that it is difficult to believe that

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