

development, are not available for the latter so long as there is an intensive growth of organs before puberty.

Finally, the sex specific reaction to the ovarian graft is considered, with special reference to the guinea-pig. Here castrated males and castrated females behave differently when engrafted each with an ovary of the same female, the male showing rapid and uninterrupted progressive development to a state of hyper-feminisation, while in the female development is slower and interrupted, with a certain amount of regression, and it never attains the same degree of hyper-feminisation nor is there ever milk secretion. This difference is due, not to somatic differences in the sexes, but to the different behaviour of the ovarian graft, due to some unknown internal factors. The author concludes that general internal factors outside the ovary are of fundamental importance equally with the ovarian hormones, in maintaining a normal sexual cycle.

### University and Educational Intelligence.

**BIRMINGHAM.**—The transfer of the Zoological Department from Mason College to the new buildings at Edgbaston is now completed. The new quarters, which are spacious and well lighted, include a teaching museum and excellently equipped laboratories both for research and routine teaching of all grades. A good departmental library is provided to meet the needs of research workers. Special attention is to be given to comparative invertebrate physiology, experimental embryology, and entomology (including field work).

**MR. GEOFFREY EVANS** has been appointed principal of the Imperial College of Tropical Agriculture at Trinidad. Mr. Evans was in the Indian Agricultural Service from 1906 until 1926. He was for a time attached to the Queensland Government in Australia as director of cotton culture, and during this period he also worked in Fiji, Papua, and New Guinea.

SOME experiments in Indian education are described in a pamphlet (Occasional Report, No. 14) recently issued by the Indian Government Bureau of Education. The Dalton plan has been tried with notable success in high schools at Shillong in Assam and at Dacca in Bengal and adapted with good results to the needs of one-teacher primary schools in Assam. Its success at Shillong is the more remarkable by reason of the multiplicity of vernacular languages used in the school and the lack of anything like adequate accommodation. After four years' trial the teachers are enthusiastically in favour of the new method and endeavour to turn even the periods devoted to class teaching into something more of the nature of conferences of teachers and pupils. Experiments at the American Presbyterian Mission training school at Moza in the Punjab have been directed toward evolving a type of education which will succeed in village schools through relating closely to the pupils' village environment all the work, including the practical farm and domestic training, but in such a way as to tend toward the bettering of present village conditions. The principle of 'learning by doing' and the 'project' method are constantly applied, and great attention is paid to cultivating a capacity for self-help. An account of the introduction of a scheme of medical inspection of school children at Simla concludes with the remark that although a feeling of dismay exists generally in India on account of the present neglected position of this work, yet the Simla Municipality congratulates itself that school medical inspection for its boys is equal to that of any town in the West.

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### Calendar of Discovery and Invention.

**August 21, 1843.**—It was during the Cork meeting of the British Association in 1843 that Joule on Aug. 21 read to "an unwilling audience of six" his paper "On the Calorific Effects of Magneto Electricity and the Mechanical Equivalent of Heat." From the experiments described he obtained the value of 838 ft.-lb. for the mechanical equivalent. In a post-script to this paper Joule said that he was satisfied "that the great agents of nature are by the Creator's fiat indestructible, and that whatever mechanical force is expended, an exact equivalent of heat is always obtained."

**August 22, 1765.**—In 1713 an Act of Parliament was passed offering sums of £10,000, £15,000, £20,000 to any one who could discover a method of determining the longitude at sea within 60, 40, or 30 geographical miles respectively. The reward of £20,000 was eventually won by John Harrison, whose fourth timepiece, in the form of a watch about 5 in. in diameter, during a voyage in the winter 1761-1762, enabled the position to be determined within 18 miles, and during a voyage in 1764 to be determined within 10 miles. Harrison, however, was treated with illiberality by the authorities, who improperly withheld the reward and imposed new conditions. One of the new conditions was that he should give a full explanation of the principles of his timepiece, which he accordingly did on Aug. 22, 1765, in the presence of Maskelyne and six experts appointed by the Board of Longitude. In spite of this, it was not until 1773, when he was eighty years of age, that the final balance of £8570 was paid to him.

**August 22, 1850.**—In the Statuary Hall of the Capitol, Washington, D.C., stands the statue of Dr. James Gorrie (1803-1855), a pioneer of artificial refrigeration, who was the first to obtain cold by causing compressed and cooled air to expand in working a piston in a cylinder. Gorrie's patent was dated Aug. 22, 1850. He died at Apalachicola, Florida, and his statue was placed in the Capitol by that State.

**August 24, 1871.**—Helmholtz visited Scotland in 1871, and in a letter to his wife from St. Andrews, dated Aug. 24, 1871, he referred to a dinner with Crum Brown the chemist and Sylvester the mathematician. Helmholtz in his letters also gave the amusing sketch of Tait: "Mr. Tait knows of nothing else here but golfing. I had to go out with him. My first stroke came off; after that I hit either the ground or the air. Tait is a peculiar form of savage; lives here, as he says, only for his muscles; and it was not till to-day, Sunday, when he dare not play and did not go to church either, that he could be brought to talk on rational subjects."

**August 26, 1856.**—While a student and assistant under Hofmann at the Royal College of Chemistry, Oxford Street, Perkin, who was then but eighteen years of age, while experimenting during the Easter vacation of 1856 with the object of producing quinine artificially, was led to oxidise aniline, obtaining as the product the colouring matter known as aniline purple or mauve. The new dye was favourably reported on by Pullars of Perth, and it was patented by Perkin on Aug. 26, 1856. The following year Perkin set up a factory at Greenford Green, with the aid of his father and brother, and from this dates the birth of the great coal-tar colour industry.

**August 27, 1783.**—The use of hydrogen in balloons was due to the French physicist, Charles, whose trial balloon, 3.9 metres in diameter, was released Aug. 27, 1783.

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