

SCIENCE.

Photography.

Now application of Photography.—Photography is now being applied to the registration of the pulsations of the heart and arteries, a purpose eminently useful to the physician. The apparatus employed consists of a glass tube, that at one end is widened out into a cone, the base of which is closed with a thin membrane of vulcanized india-rubber. The upper extremity of the tube is inserted into the slit formed in a division placed in a small camera about its middle and at right angles to its length; the slit being capable of being closed or opened at pleasure, by means of a small movable screen. The sensitized plate is made to move with a regulated speed by clock-work. When an experiment is to be made, so much mercury is placed in the tube that it will rise to some portion of the slit, within the camera; and the membrane is laid on the heart or the artery the pulsations of which are to be recorded. Every pulsation disturbs the level of the mercury in the upper part of the tube, and as light can pass to the sensitive plate only through the tube a picture, having an undulating lower margin, is formed.

The sensitized plate moves at the rate of one centimetre per second; but the effect is magnified so that the curve representing it has an extent of fifteen centimetres. The rate and energy of the pulsations of the heart or any artery is, in this way, accurately and satisfactorily recorded.—*Intellectual Observer.*

Chemistry.

Artificial Meerschaum, etc.—Chemistry has discovered a new and interesting use for potatoes and other vegetables, illustrations of which are now to be seen at the Paris International Exhibition. If potatoes be peeled, and macerated for about thirty-six hours in water, to which eight per cent sulphuric acid has been added, well washed with water, dried in blotting-paper, and then in hot sand for several days, on plates of chalk or plaster of paris, which are changed daily, being compressed at the same time, an excellent imitation of meerschaum, answering well for the carver, or any purpose not requiring a high temperature, will be obtained.

Greater hardness, whiteness, and elasticity will be produced if water containing three per cent of soda, instead of eight per cent sulphuric acid is used. And if, after the potatoes have been macerated in the solution of soda, they are boiled in a solution containing nineteen per cent soda, a substance resembling stag's horn, and which may be used for knife handles, etc., will be formed. Turnips may be used instead of potatoes in the production of the artificial horn; and if carrots are substituted for the potatoes, a very excellent artificial coral will be obtained.—*Intellectual Observer.*

EDUCATION.

Gilchrist Educational Trust.

Under this title, there has existed for some years, in England, an institution having for its object the encouragement of education, and the study of the sciences in every part of the world. Owing to the liberality of Dr. Gilchrist, bursaries have been founded to aid in carrying out the idea.

The youth of Canada are called upon to participate in the advantages offered, observing certain conditions contained in a programme to be obtained from the Colonial Secretary, addressed through His Excellency the Governor General.

A bursary of the value of £100 sterling per annum, and tenable for three years, will be granted to every successful can-

didate, a resident of the Dominion of Canada, who will become eligible to compete, and who desires afterwards to pursue an academic course of study in Great-Britain, — the following conditions stipulated:

1. Every candidate must be a native of Canada, or have resided there for five years immediately preceding the examination.

2. Every candidate must furnish to the local authorities satisfactory proof, that he is at least 16, and not more than 22 years of age.

3. Every candidate must also furnish satisfactory proof to the local authorities that his morality entitles him to compete for a bursary.

4. Candidates approved by the local authorities will present themselves for the matriculation examination at St. John's College, London University, which will take place simultaneously at Quebec, Montreal, Kingston, Toronto, Ottawa, Halifax, and in a city, subsequently to be named, in New Brunswick, commencing the last Monday in June under the direction of Sub-Examiners named by the Governor of Canada.

5. The answers of candidates, approved as aforesaid, will be transmitted through the Colonial Office, to the Registrar of the University, who will lay them before the Examiners for correction and revision, and who will draw up a report of the result of the examination; and the bursary will be awarded to the candidate who shall have gained the best notes at the examination, provided he shall have taken "honours," or shall have been admitted to the 1st Division.

6. The decision of the Examiners will be immediately transmitted by the secretary of the "Gilchrist Institution," through the Colonial Office, to the local authorities of the capitals of the colonies, then to be made known to the candidates.

7. The successful candidate must present himself to the secretary of the "Gilchrist Institution" in London, not later than the first week in October following his nomination.

8. Each bursar will have to choose between the "Edinburgh University," and "University College," London, in which to follow his course; but he will be expected to pursue his studies with the view of graduating in one of the four Faculties of the London University.

9. Each bursary will be considered as having commenced from the 1st July following the decision of the Examiners, payable quarterly the 1st October, January, April, and July.

10. Each bursar, each session, shall follow at least three courses of lectures in the institution which he has selected, and shall transmit to the secretary of the "Gilchrist Institution," at the end of each session, a certificate from each of the Professors whose course he has followed, stating that his diligence and conduct have been satisfactory.

If he be unable to procure such certificate, and if it be otherwise proved that his conduct is unsatisfactory, he will be considered as having lost all claims to the payment of the remainder of the bursary.

Each bursar must present himself at the first examination in one of the four Faculties of London—arts, science, law, or medicine, before the expiration of the second academic year, dating from the day when he shall have obtained his bursary; should he fail to present himself, unless excused by the administrators, or fail to pass, he will be considered as having lost all right to the remainder of the bursary. After having passed his first examination, he must pursue his studies with a view of presenting himself for a second, within two academic years.

The foregoing schedule will be subject to revision from time to time, the administrators reserving to themselves the right to modify the conditions of the bursary, or to withdraw it altogether should they judge it expedient. There will, however, be no change made that will affect the interests of candidates already provided with bursaries, nor in any case without previous notice of twelve months.