

## POULTRY

### Another Theory of Sex Control.

The following we think is the newest theory of sex control and we publish it for what it is worth. The reprint is from a translation in *Poultry* (Eng.) of an article by Arthur Wulff in a German paper:

"Time and again has it been our unfortunate experience to discover among the progeny of our cockerel breeding pen a preponderance of females, while the pullet breeding pen has produced a majority of the male element—and that is the point where we should like to make nature subservient to our will.

"The control of the sexes in the progeny of living beings has for hundreds, nay, we say thousands of years been a favorite subject with physiologists (not merely breeders of animals). Who does not remember the excitement caused some ten years ago by Schenck's theory, proved upon further investigation to be untenable? The statistical material relied upon in similar cases is generally not comprehensive enough both as to number of objects and duration of experiments. One is apt to generalize from accidental results—and therein lies the weakness of most former propositions.

"Of greater value than the statistics of the human race is the record (well supported by documentary evidence) of our most important domestic animal—the horse. The considerable size and costliness of the individual, the consequent easy determination of identity, the long period of gestation, the birth of (invariably) but one at a time, and especially the careful registration of the stallion's 'visits,' combine to furnish weighty material, from which we draw the conclusion that foals in cases where the mare has been 'covered' in the evening (that is, after the stallion had been previously used during the day) will generally follow the sex of the mother.

"We do not know whether this fact, which is no doubt capable of a plausible explanation (the older seminal cords—Samenfaden in German—have a tendency to produce male, the younger ones female offspring), has already been noticed in the poultry world, though we may add that we alluded to it two years ago. At all events, poultry is in our opinion especially adapted to similar experiments, owing to its, shall we say, handier size, and to its capability of great and speedy reproduction. The poultry breeder, therefore, is pre-eminently the man to assist science, being placed in a much more favorable position than the breeder of mammals. And here I now beg leave to adduce two examples from personal experience, the first an accidental case (I was not then acquainted with Carl Gerot's 'The Sex of the Embryo'); the second an intentional experiment, not (by a long way) as final proofs, but merely as links of a progressive chain of evidence.

"In the year 1899, in the midst of the breeding season (beginning of April), I bought a fine Minorca hen. Not wishing to put her into my breeding pen, whose members had not visited any show since autumn, and were just in full lay, when the introduction of a stranger generally causes a disturbance of acquired conservative habits, I placed the fresh arrival in a small aviary. In the evening when the inmates of the breeding pen had retired to rest, I took out the male bird and put him into the run of the aviary, then turned out the stranger hen as well, when he invariably 'attended' to her at once. From forty eggs laid by this hen and set I obtained only pullets.

"Last year, proceeding on the same lines, I got 11 per cent. cockerels and 89 per cent. pullets. (During the interval I did not do much breeding).

"It is not so very difficult to arrange these matters with our poultry, as vigorous male birds are generally pretty 'active' throughout the day. Therefore, place your hens intended for cockerel breeding into the run with the male as soon as they leave their house in the morning, and remove them again early. Your pullet breeding hens should not associate with their appointed mate until evening, the latter having been with other hens during the day, (but, of course, the special hens must not in the meantime run with other cocks). Active males generally pay immediate 'attention' to strangers of the other sex, and it is desirable in this present instance for breeders to watch the process. (It is, as a rule, only a case of one, two, or three hens specially destined for the experiment.) Should, after abundant tests, a real law of nature be here discovered, the future of poultry breeding would certainly appear in a rosy light. I am far from asserting that the law would universally apply, but we certainly ought to try to find out if, and to what extent, it can be proved.

"Compared with previous attempts in a similar direction, the method here proposed has the advantage of easier control. That the external appearance of the egg—as has been supposed—can have any influence on the sex of the progeny, is quite out of the question; this much is clear to everyone conversant with the origin of the egg. Neither is the time of laying (morning or evening) of any importance, for it is a well known fact that constant layers produce their eggs later each successive day.

"It has further been assumed that the sex which at the moment of coition possesses greater sexual potency, prevails with the offspring. Herein we

already find a close approach to the theory utilized by us. Attempts have been made to influence matters by the differing ages of the birds; one says an aged rooster mated with young pullets produces chiefly female progeny; another maintains the opposite—and both are right. The fact is that we cannot form a sufficiently accurate estimate of the sexual potency in this general manner to enable us to produce a continual prevalence of the desired sex. As far as the act of coition is concerned, however, the method we propose takes us much nearer to the goal of our ambition.

"Generally speaking the sexual life of the hen follows a much more placid course than that of the rooster; and this rule applies also to other polygamous creatures. Noticeable sexual excitement is only exhibited by young pullets at the commencement of the laying period, and by fat old hens; while, on the other hand, the activity of the male bird does not require further comment. It is, of course, essential for the success of our experiment that vigorous males of frequently 'attentive' habits be selected in order to obtain a real difference between the ages of the seminal cords of the first acts of coition (after the night's rest) in the morning and those of the evening (after many previous acts).

"My plan for carrying out an experiment on these lines would be as follows: The cockerel breeding rooster spends the night best by himself, or with hens in a dark house. In the morning you place him with the selected one, two, or three females (I do not advise more for a beginning), and he will 'attend' to them at once. If practicable the hen he mated with should be immediately removed so as to induce him to serve the others, for repeated attention to one favorite might spoil the result aimed at. You next remove him and place him into some other pen with a moderate number of hens (of course, his special mates must not in the meantime run with other male birds).

"The pullet breeding hens have a house to themselves. In the daytime they may run with their cockerel breeding sisters; there is no objection to this, provided that an easy separation can be effected in the evening. Their destined mate runs meanwhile with other hens until evening, when you remove him and place him into his proper pen. His duty fulfilled, away he goes again to his night quarters. Of course, all the birds must be well looked after (as usual in the case of the breeding pen) in order to produce healthy and vigorous offspring.

"The manipulation just described is not so very difficult where proper arrangements already exist for separate cockerel and pullet breeding. The matter looks more complicated on paper than it will prove in reality, and we should like as many of our friends as possible to give it a trial and to inform us of the result. Nothing perhaps may thereby be gained; on the other hand there can be no loss.

"It will entirely depend on the, we trust, very numerous participation of breeders whether the evidence can be finally summed up with *Eureka* or *Ignoramus*."

## FIELD NOTES

### Events of the Week.

#### CANADIAN.

According to the last police census, the population of Calgary is placed at 21,500.

Nine hundred entries were made for the Doukober lands lately thrown open for homesteaders.

The Hudson's Bay Co.'s steamer Mount Royal was wrecked in the Skeena River and six of the crew were lost.

Dr. Acland Oronhyatekha, only son of the late chief of the I. O. F., died suddenly on July 7th at Deseronto, Ont.

The draining of the great Yellow Grass marsh into the Souris River is being considered by the Saskatchewan Government.

The contracts made by the Canadian Government for improvements on the Intercolonial Railroad will amount to a million dollars.

Valuable deposits of the fine white sand used in the manufacture of the best china and glass have been discovered at Warman, Saskatchewan.

Miners at Cobalt, Ont., are threatening to go on strike, and in view of the fulfilment of the threat the Government is taking steps to prevent a supply of liquor reaching the district while the strike lasts.

At Lethbridge, Alta., Judge Harvey fined a man \$200 for causing injury to the public interest by inserting in an advertisement, "Americans not wanted in Canada; investigate before buying land or taking homesteads in this country."

Senator Davis, of Prince Albert, thinks a very simple plan to prevent a coal shortage in the Northwest in the winter, would be for the railways to so reduce rates as to make it worth while for dealers to buy their season's supply in the summer and store it until needed. This would use a large number of cars usually idle in the summer, and leave more cars free for carrying grain at the close of harvest.

#### BRITISH AND FOREIGN.

J. Kier-Hardie, M. P., leader of the Labor party in Great Britain will visit Canada in September of this year.

The newspapers are making all the preparations necessary for a war between Japan and the United States.

Specialists are to determine the competency of Mrs. Mary Baker Eddy, the founder of Christian Science, to transact business and manage her own affairs.

The Australian Parliament will be asked to repeal the compulsory arbitration act which has been in force for three years, and to appoint "wage commissioners" instead.

Seventy thousand Christian Endeavorers are in attendance at the international convention held this year in Seattle, Wash. Dr. Clark, the founder of the movement, is present.

The Belgian crew captured the Grand Challenge cup in the rowing races at Henley, Eng., defeating Christchurch, Oxford, by a bare length. The time was 7 min. 31 sec. This crew were the winners last year also.

Dr. H. K. Hoy of Altoona, Pa., who was the financial backer of the cobbler of that city who thought he had discovered a method of using ashes for fuel, committed suicide as a result of the failure of the scheme and the consequent ridicule he was called upon to endure.

Mayor Schmitz of San Francisco was sentenced to five years in San Quentin prison for extortion. The crowd in the court room cheered when sentence was pronounced by Judge Dunne. Schmitz will appeal for a new trial and declares that he will run again for mayor next year.

The American arbitration proposition at the Hague is as follows: First, the submission of differences regarding the interpretation of treaties not affecting the independence or honor of the parties involved in the interests of other states to the permanent court of arbitration. Second, each party to decide whether the differences affect its independence or honor. Third, in every case arising the parties shall draft a protocol outlining the arbiters' powers and the procedure. The fourth and fifth clauses provide for keeping the records of the court and allow a state to withdraw from the convention on giving a year's notice of its intention to do so.

### Georgian Bay Canal Prospects.

R.W. Perks, M. P., of Messrs. Walker & Co., London, Eng., a firm that has successfully completed many of the greatest canal and other public works in the world, has gone personally over the entire route of the proposed Georgian Bay Ship Canal, and the plans of his engineer have been completed, and are now in the custody of the Dominion Government in accordance with the requirements of the charter. He has also been conferring with financiers in America, who will probably co-operate with himself and other British capitalists in the enterprise. He does not think there will be serious difficulty in financing that undertaking. At Liverpool, Eng., he expected to confer with Sir Wilfrid Laurier before the latter started for Canada. He is in a position now to submit a proposition for the completion of the work. As to its advantages he regards it as a commercial necessity of the Dominion, giving a continuous 22-ft. waterway to the upper lakes, so that 8,000- to 10,000-ton vessels could go direct to European ports without breaking cargo. It would relieve the railways of congested traffic, and contribute in other ways to them. As to financial returns, he said the traffic passing through the Soo locks already exceeds the tonnage of the Suez Canal, one of the most remunerative undertakings in the world. If, in four or five years, one-fourth the traffic passing through the Soo went eastward via the Georgian Bay Canal, the result would be very satisfactory upon the capital involved. It will mean also the utilization of vast stores of electrical energy along the route, developing various industries.

The International Exhibition, held in New Zealand for five and a half months (1906-7), attracted a daily average attendance of 13,714, or a total of 1,020,000. Canada was conceded by the press to have had one of the very finest of the foreign exhibits.