conditions to a successful, fair trial must be just right, that it would be next to an impossibility to ever conduct such a trial. One breed does best only under the very conditions that would act against one of its rivals. And there is no positive assurance that any of us has ever discovered just how to make any one breed do its best.

G. AND P. ENTY, in Poultry World.

How Breeds are Varied by Crossing and Judicious Selections.

FROM recent carefully prepared statistics it appears that the poultry product of the United States amounted to $650,000,000, whilst the wheat crop was only worth $488,000,000, the dairy product $254,000,000 and the pork output $225,000,000 per annum. And it may be said that a great deal of this revenue has arisen from breeders of fancy or pure breed. Within the last five years there have been no less than twenty different species of fowls introduced into the fancier's market, and claiming entrance into the Standard of Excellence on the record of the typical points of the large array of different breeds of fowls. Indeed the crossing and originating, and improving poultry has become a scientific study in what is termed biology and the origin of species or variations of type by crossing. Now of the one hundred and twenty or more species of chickens—Leghorns, Bantams, Brahmas, Minorcas, &c,—they have had one common ancestor, the *Gallus Bankiva*, or a jungle fowl and just the same as the mastiff, the hound, the bull dog, the terrier, the pointer, the spaniel, &c., trace back their origin to a single kind. But these variations have not been brought about altogether by internal variation in original type and crossing, but also by external circumstances, such as climate, feed and surrounding conditions. Selection and crossing are the primary principles, but types will vary according to locality and feed. Then, physical condition. Why is it that we have by selection and using certain habits of an animal, that these habits can be changed and become a fixity? How is it that by selection we have the antipodes in size between a Bantam and a Cochin, and the non-incubating dispositions of a Minorca and Leghorn in contrast with the sitting propensities of the Asiatic? These are points of vital interest, when it is considered that poultry holds such a prominent part in the natural wealth of the country. There is one thing certain that a fowl by breeding may develop one quality or the other; but one thing is certain the qualities of eggs and flesh production cannot take place in the same animal at the same time. If you have the large bone, feathers and meat of the large breeds, like Brahmas and Cochins, you diminish your egg supply. But on the principle of egg or meat supply in a fowl this may be directed by breeding. The inherited qualities for sitting, or hatching of Brahmas and Cochins may be diverted and, a Brahma, for instance, can have the breeding instinct subverted as in the case of the non-incubating class. And how? by simply only breeding from early-hatched pullets in the previous year and who lay in the winter before the incubating tendency develops. Breeding thus for say five generations produces this quality. There has been a great business done in England and America on this new breed of fowl business, and by judicious advertising enormous sums have been amassed. New breeds of poultry is a scientific problem in biology, and as well as producing the most beneficial results with regards to the most nutritious elements that enter into our daily food. By this principle of variation and selection great results have been produced not only in a scientific point of view, but also practically. Whoever has read Darwin, Huxley, and the leading lights in natural science must know that they gathered their leading principles of biology from the variation in pigeons and domestic fowls. It may not be out of place to look into how a few of our breeds have been produced which stand prominent in breeding circles. Everybody knows historically the great Brahma pootra and Cochin craze of 1850 in this country and England, when eggs sold for a sovereign apiece, and people fairly went crazy on these Asiatics. The original color of these Cochins was buff or cinnamon, and blue, but these, by crossing and "sporting" developed into black, white, and partridge Cochins, and into light and dark Brahmas, and more recently in this line the Langshans, which are evidently only an allied species of this same Asiatic crowd. Our Asiatic friends appear to have an insight into the mysteries of poultry breeding as we have, as there are dozens of sub-families of the *gallinae* species in Hindostan, Japan and China that we know nothing about. In fact, new breeds of poultry are produced with the same ease as our different kinds of potatoes and apples. There has been an enormous business done in England and the United States in this new breed business and men have made money by understanding a few elementary principles of breeding and by a lot of chance by breeds "sporting." Every one knows the Plymouth Rock was brought about by the union of a couple of types, the old black Javas and the Puritan speckled Dominque, yet men amassed fortunes on this simple amalgama-