No communications—except official notices, and reports or important public documents—which have previously appeared in other journals, can be inserted in the LIVE STOCK JOURNAL AND FANCIER'S GAZETTE. We cannot return rejected communications.

TO CORRESPONDENTS.

Communications on the Wetherby Duchesses, the Lottery of Breeding, Price of Meat in France, Origin of Newfoundlands, Pouters, Rabbit Keeping, &c. &c., are acknowledged with thanks.

NEXT WEEK.

Feb. 22.—Glasgow (Stallions).
Feb. 24, 25, 26.—Dublin.

THE
Live Stock Journal
AND
Fancier's Gazette.

FRIDAY, FEBRUARY 18, 1876.

Live Stock Statistics.

We referred very briefly last week to the nature of the "statistics" adduced at the "popular" Exeter Hall meeting on the subject of meat supply, the subject of our comment being the statement by the chairman—he an F.S.S. too—that foreign imports of live stock had greatly "decreased" from 1871 to 1874; the real fact being precisely contrary, as was smoothly intimated to the deputation from this very meeting on Tuesday of the present week by the Duke of RICHMOND, who shows of late a change of front which must be highly gratifying to Mr. C. S. READ and his supporters, and which we can only regret comes so late, though we are pleased to see that particular misrepresentation so clearly contradicted by the noble Duke. An equally imaginary statement by Professor E. THOROLD ROGERS had escaped us, but is noticed by Mr. JOHN ALGERNON CLARKE, in a letter to the *Times*. The Professor had stated that this country had "fewer live stock in proportion to its area than any other civilised country in Europe," and particularly referred to Denmark as a bright particular example in this respect. Mr. CLARKE shows that the statement is the exact reverse of the truth, and that Denmark in particular has only half the number of sheep, and not more cattle, for a given area.

The importance of the matter consists, as before stated, in the fact that "an increase of live stock per acre" lies at the root of the whole question, both of the price and the supply of meat to the people. But it is not perhaps surprising that our ably conducted contemporary *The Farmer*—than whom no journal has perhaps done more solid good in connection with this subject, by collecting and publishing statistics from time to time bearing upon it—wanting wrathful at such manipulation of figures and facts, should conclude its remarks thereon by a grim sneer at "Professors on the Stump," and the ignorant crowd who "follow and applaud."

Judicial Responsibility.

A LEADER in another column raises again, in a perfectly fair manner, a question which we have purposely kept apart from all others connected with the judging at our shows, not because we have any doubt as to the best mode of procedure, so much as because that testing process which all plans have to go through, and which ultimately results in the "survival of the fittest," in this as in other cases, has to a large extent settled the question already in a large portion of our exhibiting departments. Years ago, long before this [illegible] poultry were almost universally judged by pairs of judges, while at Birmingham even three were appointed; and the single system was persistently resisted, as were other suggestions from the same quarter—such, for instance, as the systematic use of *v.h.c.* to distinguish specimens which are worth more than ordinary commendation, and for which no prize existed—but which have long since, and in spite of such opposition, passed into actual fact. So, in this case, by its inherent superiority, the system of single judges has almost entirely supplanted the other in the case of poultry and pigeons; and the result has been, until the comparatively recent and serious increase of the combination of judging with *dealing* which has so seriously influenced results, and given such offence to public opinion, very manifest advantage to all concerned.

Our present remarks, therefore, as with those of our correspondent, more particularly refer to the Kennel section of our readers. We have before observed that cattle judging involves in several respects quite peculiar conditions, from the very different proportion of value borne in their case by pedigree as distinguished from individual excellence; and in the case of Shorthorns, at least, there is also such a marked difference of opinion as to the desirable type itself, that it may well be necessary all main phases of opinion should be fairly represented and fairly balance each other on the judging staff. Not only so, but the far more limited number of classes and competitors gives, in the case of all farm stock, ample *time* for deliberate comparison of views, and the full advantages of that staff of *three* which is almost invariably employed, and is obviously necessary to ensure a clear preponderance of opinion. For these and many other obvious reasons, we see at least no present cause to disturb, in the case of farm live stock, the present practice; but in canine exhibitions the circumstances are widely different. There are here the very same difficulties and evils which were so felt in poultry shows. There is a general *consensus* of opinion as to the correct type; there are numerous classes, and often heavy entries; there is want of time and the consequent urgent need to make the most of the available staff; and, above all, there is, as our correspondent points out, the constant contradiction in awards without any possibility of fixing the responsibility for it in definite quarters. The evil is intensified by the fact that dog judges, where not acting singly, almost always do so in pairs; the very worst arrangement possible, since it constantly leads to difference of opinion, and the consequent appeal to—mark this—some other *single* judge. How unfair to the judges themselves is such a state of things may be easily enough seen; but we mention as one of the instances constantly occurring, that a well-known representative of this JOURNAL was on two different occasions scurrilously attacked for "his" awards, when in each case he had very reluctantly, and only with a strong protest, given way to a colleague from unwillingness to be constantly calling in a referee. It is not, indeed, always easy to procure the latter, many gentlemen objecting to be dragged into affairs which often give offence to the exhibitors decided against. We have known many refusals to act in such cases; and we also know that to avoid such difficulties it is by no means unusual for two judges, by common consent, to "take turns" in yielding to the other; but such expedients, though amiable, and perhaps even necessary, scarcely deserve to be called "judging."

It is, indeed, difficult to see any possible advantage in two judges. If they agree, the same decision is come to which would have been arrived of any personal bearing. They apply generally and hardly a judge has not at some time or other been embarrassed in the manner described. If more than one judge is to be employed, there should, in simple justice, be three and not two, in order to secure a real preponderance of opinion. If not, it may be suggested whether a general referee ought not to be appointed *before* any difference occurs. Many a gentleman would consent to act thus, who will refuse when some particular difference is submitted to him, which he may have strong private reasons for not wishing to meddle with; and such a course would also save a judge from any suspicion of naming one whom he might know beforehand would endorse his opinion. But in all such cases of difference, we think it would be both for the credit of the judges and the satisfaction of the public that they should be clearly stated, with the side taken by each, and, if possible, the reasons given for his decision by the referee.

We believe, however, that the single-judge system will, on consideration, more and more commend itself to all parties, and will accordingly make its way, as does the publication of judges' names. That, too, is an old topic, and is by no means universal yet; but these few shows which refuse it are more and more meeting their due reward. That system has made its way, like others, by its own inherent merits, and so we believe will it ultimately be the case with a system of judging, which seems to us practically bound up with any real Judicial Responsibility.

The Future of Animals.

I SHOULD be glad to add a few words to your remarks on Mr. Wood's argument for the Immortality of Animals, and to place the question in another light.

In a world wherein existed no higher being than oxen and lions, wherein no moral development was apparent, and none felt love and worship for the invisible God, or aspirations after the holiness of a higher and nobler sphere, there would, I apprehend, be no reason for doubting that what we beheld of the life of each creature was its sole destined existence, and that death was universally, and to all, the final termination of consciousness. Whether the Creator of such a world might be justly assumed to be a beneficent Being in view of the immense amount of innocent enjoyment it would contain; or whether, on the contrary—

> "Nature red in tooth and claw,
> With ravin . . ."

would "shrink against" such a creed, need not now concern us. The world in which we actually dwell, and from whose constitution alone we can dimly guess at the design of the universe, is built on quite another plan. The appearance of man upon this planet gave a new meaning to all the ages of time wherein the mighty Saurians and the giant mammoths had been lords of the globe. So soon as the primeval savage began to bow beneath the blue Heaven—throne of a Power unseen, yet felt; so soon as the cave-dweller of Aurignac, in the earliest stone-age, laid beside their dead the weapons of the chase, the faith that something in them survived which those spears and hatchets would yet be useful; even then there was evidence that the scope of things was meant to be wider than the mere conditions of animal life; and every age, which has strengthened and elevated the religious sentiment, deepened the moral life, and glorified the immortal hope of man, has cumulated the reasons for the belief that God has not made His noblest work a mere abortion, or spoken for His last word a prophecy destined never to be fulfilled. Standing on the vantage ground of *human* immortality (if we may thus presume to do so), the aspect of the whole scheme of things is immeasurably enlarged. We gain a glimpse of profounder purposes,

Twins and Fertility.

It may interest many readers to follow the article on Mr. Galton's theory of Heredity, by extracts from a paper entitled "Short Notes on Heredity, &c., in Twins," contributed by Mr. Galton to the *Journal* of the Anthropological Institute. In several particulars the paper is very interesting.

First, in respect to heredity. It was impracticable to judge of this from my returns by any direct method. Twins do not marry so frequently as other people, and I think they are less fertile; hence the parents of twins, who are themselves one of a pair of twins, are relatively few, and the numerical ratio between such parents and the parents of twins generally would be a fallacious test. Neither could I institute a direct comparison between two groups of children, one of whom were the offspring of fathers or mothers who themselves were of twin birth, and the other were not, because my material was insufficient. I therefore have confined myself to data derived from uncles and aunts.

I find with regard to 94 cases of twins, of whom I have sufficiently full returns, that they had a total of 1,065 uncles and aunts, and that among these there were 27 sets of twins.* In other words, there were twice 27, or 54, persons who were severally one of a pair of twins among the 1,065 uncles and aunts—say 1 in every 20.

In the population generally the proportion is not nearly so great, but it varies largely under different conditions, and I therefore prefer to compare my returns with those derived from parallel returns supplied by precisely the same classes, which have been drawn up by Mr. C. Ansell, jun., in his most valuable "Statistics of Families of the Upper and Professional Classes of England." It was compiled at the cost and under the direction of the National Life Assurance Society, and leaves nothing to be desired in its completeness, terseness, and adequacy. From these we learn that there is 1 twin birth to about every 100 ordinary births; in other words, there two persons, each severally a twin, among every 101 persons—say 1 in every 50.

Hence the chance of an uncle or aunt of a twin being himself or herself a twin is as 50 to 20, or 2½ times as great as that of people generally. It may perhaps be thought simpler to state the result in this form:—Among the uncles and aunts of twins, there is an excess per cent. of three individuals of twin birth due to hereditary causes. The average influence of heredity in fathers and in sons may be taken as fully five times as great as that in uncles and aunts; we should therefore expect, on general grounds, that the former would yield an excess of at least 15 por cent., or an absolute number of 15+2=17 per cent. of individuals who were twins; but this, I feel sure, is in excess of the truth.

Next, as regards the relative power of the male and female in transmitting an hereditary tendency to bear twins. I find that the 94 sets of twins above mentioned had—

On the father's side	...	538 uncles and aunts,
Among whom were	...	14 sets of twins.
On the mother's side	...	527 uncles and aunts,
Among whom were	...	13 sets of twins.

These numbers may be considered identical in a statistical sense; hence the hereditary tendency is the same in the male and female lines.

The largeness of the families in which twins are born is sufficiently manifest from these returns, which happen to be the only ones I possess that can be adduced in proof of it. We see that 94 sets of twins had, on the father's side, a total of 538 uncles and aunts, which, added to the 94 fathers, makes 632 individuals in 94 families; this is at the rate of 6¾ in each of the families of which the father of a twin was a member. Almost the same occurs (the precise figure is 6¾) in each family of which the mother of a twin was a member.

Mr. Galton then gives a "curious instance of the intermarriage of three twin-bearing families, which he states "are well known socially, and have each of them distinguished members." Though his information was a little imperfect, he is able to state that in three generations were produced one *quadruple* birth, one triplet, and eight pairs of twins. He quotes another case of a twin-bearing family, in which it appears that "whenever single children were born, they always had six fingers and six toes," though the twins never had. Hence is shown the tendency to multiple propagation. Mr. Galton then proceeds—

> The vigour of body and mind of those twins who survive infancy, who strongly resemble one another, and who have sent me returns, is certainly not below the average. On the contrary, I find, from the returns that I have received, that nearly one-half of them are decidedly above par; and thence I infer that more than one-half are somewhat above par. It is easy to adduce instances of vigorous twins. One of my own correspondents, a twin, was a senior wrangler; Lords Eldon and Stowell had each a twin sister; and among others who have successfully fought the battles of life may be mentioned Bendigo, the ex-champion pugilist, who was one of a triplet birth.

Notwithstanding Sir J. Simpson's statistical results, I still think the popular belief to be a true one, that twins contribute less to the population than other people. My returns were not framed to afford a direct answer to the question of their fertility; but I can incidentally gather enough from them to be sure of the fact; also that there is not so strong a tendency among twins to marry as among other people (however this may be accounted for); and lastly, that the popular belief that both twins, whether of the same or opposite sexes, *never* have children, is erroneous, for I have many instances to the contrary.

There is nothing known in the human race, except as a rarity, corresponding to the "free-martin"* in cattle; and where known, it has never yet been found, so far as I am aware, in connection with twin births. Neither is this peculiarity of neutral sex found in such domestic animals as dogs or cats, except in the rarest instances; but in the horse, ass, and sheep, and especially in cattle, it is comparatively common.

John Hunter's "Memoir on the Free-Martin" (vol. iv. p. 34, edition of 1837) is extremely curious. It appears that when a cow (he says he can only speak of black cattle, but I understand it is a more general fact) brings forth two calves, one of which is a bull calf, and the other, to external appearance, a cow calf, the former grows up into a proper bull, but the latter does not commonly grow into a proper cow. The animal is unfit for propagation, and is kept for labour and fattening, like an ox; and it is as well known as a specific form of cattle as is the bull or cow, and is called a "free-martin" by farmers. Close examination and dissection show that the animal is neither a complete female nor male, but combines the anatomical characteristics of both in a very undeveloped and imperfect manner; and those of the male rather predominate over those of the female. This, at least, is the modern view. Hunter's three dissections of free-martins still exist in the Museum of the Royal College of Surgeons, in the teratological division. (See the catalogue of it, pp. 97—101.) Sir J. Simpson subsequently investigated the subject. His principal memoir, alluded to above, is most interesting; and there are several other allusions to free-martins, and to writers upon them, to be found elsewhere in the two volumes of his memoirs.

There is a peculiarity in the sexes of twins; they tend to accord. The word "twin" covers different classes of events—those in which each twin is derived from a separate ovum, and those in which they come from two germinal spots in the same ovum. In the former case they are enveloped, previously to their birth, in separate membranes; and in the latter, in the same membrane. Now it appears that twins enveloped in the same membrane are invariably of the same sex, and these, according to the cases of Späeth, who has evidently taken great pains to secure reliable data, are 24 per cent. of the whole number. This is, however, greatly in excess of other estimates, which usually give about 6 per cent. In the remainder they have either one placenta between them, and two membranes, or else they are quite independent, and have separate placentas and membranes. The statistics as to members and sexes under these conditions vary so astonishingly that I can conclude nothing concerning them. The general upshot is, that about twice as many twins are born of the same sex as of opposite sexes; whereas if there were no influences to produce accord, and on the supposition of an equality of male and female births generally, the numbers ought to be equal.

It is only among twins of the same sex, and therefore presumably only among twins derived from the same ovum, that we find an extremely close likeness, or else an extremely marked dissimilarity. On the other hand, in twins of the opposite sex, we find only an ordinary family likeness or dissimilarity.

Further information on the subject of free-martins is very desirable; we know it to have been earnestly sought by Mr. Galton in many quarters without success, and if any of our readers can supply any facts bearing upon the matter we shall be exceedingly glad. The points on which such information are desirable are, 1, The true derivation of the word; 2, Any equivalents for it in other languages; 3, If the phenomenon is common to all breeds of cattle; and 4, The extent of its occurrence. We may, perhaps, note that a fowl very lately shown as a Spanish hen, and which has won prizes, is believed by many to be of neuter sex; and on its death we trust it will be dissected. But whether this bird was a survivor from the rare but by no means unknown occurrence of twin-birds in one egg hatched alive (many such occur, but usually perish) there is, we believe, no evidence to show.

* To save complexity, I include among these, three cases in which the parent was one of the twins.

* Marten seems originally to have meant an animal intended to be killed at Martinmas, which was the period in former years, before the introduction of root-crops, when cattle were slaughtered and salted down for the winter's food of the population. As barren cows were slaughtered preferably to others, the name of marten became especially applied to them. Why the animals about which I have been speaking were called free-martens, it is not altogether clear. Free might mean "naturally admitted to the privilege" of being slaughtered at Martinmas.

The Dairy Schools of Denmark.

These schools have been in existence for the past ten years in Jutland and the Danish islands. There are six in Denmark, and they are all prospering.

The following is from the notes of a French traveller, who visited one of these establishments, translated from the *Magasin Pittoresque*:—

"The school," says he, "is situate in the island of Zealand, about twelve miles distant from the Taastrupp station on the railway from Copenhagen to Coison. It is called the Thüne Candburgs Skole (Agricultural School of Thüne), and was founded in 1865, by Valcintinas, one of the most distinguished Danish writers on husbandry.

"The director of the school, who is assisted by his wife and three professors, cultivates about 130 acres, keeps a herd of 20 cows, and bordering on the establishment is a farm, on which there are not less than 130 or 140 milch cows.

"Two sections of pupils are instructed. From the first of September to the first of November the pupils are all girls; from the 15th of November to the first of August, the girls are replaced by boys. The girls pay about £2 per month, and are obliged to provide their own bed and personal linen, but receive board and lodging, light and washing, beside excellent professional instruction.

"At the time of my visit to this establishment, I found engaged in it sixty-two handsome and healthy-looking girls, all of whom had nice manners, and were, seemingly, comfortable and happy. The director assured me that they were all daughters of wealthy peasant-proprietors. The instruction given is theoretical as well as practical.

"The pupils, before being received into this establishment, must possess a good elementary education; their ages vary from fifteen to eighteen years. On entering the school, they are first in Scandinavian history, afterwards in arithmetic, book-keeping, natural history, the management of the dairy, physiology, and alimentation of cows. And through all, it is the object of the instructors to excite their pupils' curiosity, and fix their interest in agricultural matters. The book-keeping taught consists merely in the affairs of the dairy and general housekeeping; nor is sewing neglected, for in the afternoon the pupils are engaged in it; and, lastly, they are practised in singing by repeating religious and patriotic airs.

"The greater part of the morning is occupied in practical operations, and for this purpose the young girls are all in their turn employed at the different services of the dairy and housekeeping.

"Four batches of three girls receive a hundred quarts each of skim-milk, to transfer into cheese. Eight girls are employed at the churn, four preside at the butter washing, others are engaged milking the cows, washing the dairy utensils, preparing rennet; and in this way these girls are initiated into the various duties of the dairy. Some 400 or 500 quarts of milk are daily operated upon, every process being carefully noted and explained.

"The dairy is divided into five compartments:—

"1. The wash-house, fitted with two boilers for hot water, and a plentiful supply of cold water.

"2. The compartment in which are placed the churn (worked by horse-power), the cheese press, and scales for weighing, milk, butter, or cheese as taken in or given out.

"3. The butter cellar.

"4. The compartment in which milk to be skimmed is placed.

"5. The cheese store.

"The girls sleep in two large dormitories, and eat together in one long dining-hall. The school-room, like the other apartments, is large and cheerful, the walls being ornamented with maps and other instructive pictures.

"The boys, who succeed the girls, remain at the establishment from the 15th of November to the 1st of August following, and receive a much more developed education. These young men are all sons of well-to-do peasant-proprietors, and before being admitted to the dairy school are obliged to attend for at least one year at one of the high schools, after leaving the elementary one.

"In these high schools, founded by private individuals and societies, and encouraged by the State, the pupils receive excellent instruction in history, geography, geometry, modern languages, natural sciences, &c. &c.

"The dairy school at Thüne receives each ye a forty of these young men. They, however, have only two hours of practical work each day, during which time they are required to assist with all the