perience of the profession on this point, and its difficulty is shown by the fact that opinions were much divided.

The constancy of type of influenza, the mode of its transmission, its independence of climatic and seasonal conditions, all suggest that its cause is "specific," — that is, having the properties of growth and multiplication which belong to a living thing.

Whether the disease affects the lower animals is not absolutely certain, but the human epidemic has often been preceded or accompanied by an epidemic among horses of a very similar disease. It is pretty well known that such a disease is now prevalent among horses in London.

It is important that there should be observed and recorded during the present outbreak, as carefully as the great demands at such a period upon the time and strength of practitioners will permit, the cases they are called to. There are some especial points upon which more light is needed. Any observations which bear upon the accompanying insomnia, or upon the question of contagiousness should be noted with precision. The questions of relapse, of recurrence, of remission, of second attacks after complete recovery from a first attack, should all receive further elucidation from the present outbreak. The duration of the epidemic in different localities, its behavior with reference to climatic changes, the direction and force of the winds, etc., merit close attention. It can scarcely be doubted that the poison is a microphyte multiplying in the air, and yet there is reason to believe that it sometimes travels, and that not slowly, against the course of the winds. It will be interesting to learn whether the "influence" was encountered by our European "squadron of evolution" in its voyage across the Atlantic. We have heard that a month ago cases occurred on a steamer crossing the Pacific Ocean from Japan to San Francisco.

There has been a somewhat greater variation in the symptoms in different cases than is ordinarily encountered in most acute diseases dependent upon recognized specific poisons, although very possibly it may prove that these may be classified under two heads. It is desirable to note how far the present cases of influenza resemble and wherein they differ from dengue.

It must, of course, be borne in mind that the mild, moist, open, variable season which has thus far prevailed, predisposes to catarrhal troubles; and again that a prostrating affection like this "influenza" brings as an accompaniment or sequel to the weak, bronchitis and pneumonia. It is, on the other hand, remarkable that in not a few of the severest cases of "influenza" lately encountered, catarrhal affections of the mucous membranes have been very slight.

NOTES AND NEWS.

DURING the past summer, at the Agricultural Experiment Station of Cornell University, investigations have been made on the general subject of the deterioration of farm-yard manure, in three main directions; namely, (1) What loss does horse-manure suffer when thrown out in a pile unsheltered from the weather? (2) What loss does mixed farm-yard manure suffer when piled in a close pile so that fermentation is very slow; but without protection from rainfall? (3) Is there an appreciable loss of valuable matter when manure simply dries without fermentation? The results of one season's trial seemed to show that horse-manure thrown in a loose pile and subjected to the action of the elements will lose nearly one-half of its valuable fertilizing constituents in the course of six months; that mixed horse and cow manure in a compact mass, and so placed that all water falling upon it quickly runs through and off, is subjected to a considerable, though not so great a loss, and that no appreciable loss takes place when manure simply dries. Professor Shelton, from the results of somewhat similar experiments carried on at the Kansas Agricultural Experiment Station, concludes as follows: "The moral which the experiment plainly emphasizes is, that, farm-yard manures must be hauled to the field in the spring; otherwise the loss of manure is sure to be very great, the waste in the course of six months amounting to fully one-half the gross manure and nearly forty per cent of the nitrogen that it contained." To show that a large number of the farmers in the State are uninformed in this matter, or at least not sufficiently alive to its importance to take proper care of their manure, Mr. I. P. Roberts and Mr. Henry H. Wing, who had charge of the investigation, have had engravings made of photographs of two actual "farm steadings" as they were found to exist, early last spring. These show particularly the watery, miry condition of the yards and the heaps of manure under the eaves. These are not isolated cases, but are fairly representative of a large number of similar views that were taken in one day in the course of a not very extended walk in a single locality, and that a dairy district. From what they have seen from car windows in their journeys through the State, much the same condition of things prevails generally.

— In a recent paper on zoogeography, in *Humboldt*, as condensed in *Nature*, Dr. Lampert states that a good many wolves are still captured in the east and west provinces of Germany, e.g., about fifty annually in Lorraine. In France, 701 wolves were destroyed in 1887; in Norway, only 15. It is estimated that in Russia the yearly loss in domestic animals through wolves is over ten million dollars, and the loss of game from the same cause, over thirty-five million. The German mole swarms apparently, in the neighborhood of Aschersleben, where 97,519 individuals were taken last year, and rewards amounting to nearly five hundred dollars were paid. In great part of Germany, however (Upper and Lower Bavaria, East and West Prussia), it is not met with. Mecklenberg and Pomerania are its northern limits at present. The beaver is nearly extinct in Germany, but a new settlement of thirty individuals was recently discovered at Regenwehrsberg, not far from Shönebeck, on the Elbe. A recent catalogue of diurnal birds of prey in Switzerland (by Drs. Studer and Fatio) gives thirty-two species. The disappearance of the golden vulture is here noteworthy. Early in this century it was met with in all parts of the Alpine chain; whereas now, only a very few individuals survive on the inaccessible heights of the Central Alps.

— An interesting inquiry into prehistoric textiles has been recently made by Herr Buschan. As stated in *Nature*, he examined tissues with regard to the raw material used, to their distribution in prehistoric Germany, to their mode of production, and to their alteration by lying in the ground. With certain chemical re-agents he was able to distinguish the various fibres, though much altered. The oldest tissues of Germany (as we now know it) come from the peat-finds of the northern bronze period. On the other hand, some articles of bone found in caves of Bavarian Franks, and evidently instruments for weaving or netting (bodkins, knitting needles, etc.), show that already in the Neolithic period textiles were made. The art of felting probably preceded that of weaving. Herr Buschan sums up his results as follows: (1) in the prehistoric times of Germany, wool (mostly sheep's) and flax were made into webs, but no hemp; (2) the use of wool preceded that of flax; (3) the wool used was always dark; (4) most of the stuffs were of the nature of huckaback (not smooth); (5) the textiles have, on the whole, changed but little in course of time. The author has some interesting observations on the oldest kinds of loom. The pile-builders on the Pfaffiker, Niederwyl, and Boden Lakes were busy weavers; and they knew how to work flax fibres not only into coarse lace, fish-nets, or mats, but into such finer article as fringes, coverlets, embroidery, and hair-nets.

— A point of great importance for the progress of Western science in the Chinese Empire is whether it should be taught in the Chinese or in a foreign language. The subject has been frequently discussed, and quite recently the opinions of a large number of men most prominently engaged in the education of Chinese were collected and published in a Shanghai magazine, the *Chinese Recorder*. The editor says that nine-tenths of these authorities are of opinion that the Chinese language is sufficient for all purposes in teaching Western science. One gentleman states that Chinese students can only be taught science in their own language, and that the long time necessary for them to acquire English for this purpose is wasted; another says that "science must be planted in the Chinese language in order to its permanent growth and development;" a third sees no reason why the vernacular should not be enough to allow the Chinese student to attain the very highest proficiency in Western science, although he admits that there is at present a want of teachers and text-books. Professor Oliver of the Imperial University at Pekin says he has never found English

necessary, but has always taught in Chinese. Professor Russell of the same institution finds Chinese sufficient for popular astronomy. On the other hand, Mr. Tenney says that it can only be for the most popular views of science that the vernacular is sufficient. "It is impossible," he says, "for scholars who are ignorant of any European language to attain any such excellence in modern sciences as to enable them to bear comparison with the finished mathematical and scientific scholars of Europe and America." Thus, he continues, as a medium of thought, any Western language is incomparably superior to Chinese in precision and clearness; the student acquainted with a foreign language has a vast field of collateral thought open to him which does not and never will exist in Chinese, and he can keep abreast of the times, which the Chinese student who must depend on translations cannot do. The relation of the Chinese student "to the world of thought is analogous to that of a blind and deaf person in the West, whose only sources of knowledge are the few and slowly increasing volumes of raised-type letters which make up the libraries of the blind." As has been said, however, the weight of opinion is against Mr. Tenney.

— The special board of engineers appointed by the Secretary of War to examine and report upon the most available point on the Gulf coast west of the Mississippi for a deep-water harbor have selected Galveston. Their report is now before Congress. The expense of improving Galveston harbor so as to fulfil the requirements is estimated at $6,200,000.

— It is generally recommended that cows at pasture in the summer should have a supplementary grain ration, and a large number of the more progressive farmers pursue this practice with an evident belief that it is profitable. In the absence of data as to the value of this practice it was deemed worth while to conduct, as carefully as might be, a somewhat extended experiment intended to afford, if possible, some light on the point in question. To this end a trial was instituted at the Cornell Agricultural Station, and conducted by I. P. Roberts and H. H. Wing. The experiment was made with six cows, selected from the University herd, making two lots mated in pairs, as nearly alike as was possible in age, breeding, time since calving, yield of milk, and time to next calving. The conclusion reached as the result of the experiment is, that, while all the data so far go to show that it did not pay to give cows on good pasture a supplementary grain ration, yet there is not as yet sufficient data to warrant recommending those who follow this practice to give it up. So far as results in butter are concerned, they are so close as to be almost identical. It is quite possible that the milk yield may have been more influenced by the "milking habit" of the cows than by the grain fed. By milking habit is meant the tendency that different cows have to milk for a longer or shorter period after calving. All the cows used in the experiment had been in milk for a considerable period, four of them about five months, and the other two considerably longer. It is not only possible but quite probable that these last two were more influenced by the individual tendency to "run dry" than by the extra grain feed in the ration. Several conditions arose during the course of the experiment that may or may not have influenced the results; and while in a certain sense they might be considered as foreign to the real discussion of the result, it seems worth while to mention them in this connection. (1) The rain-fall at Ithaca in the growing season of 1889 was phenomenal, especially in the months of June and July, the amounts in inches being as follows: June, 6.74; July, 6.73; August, 3.32; September, 2.57, while the average for the past 11 years has been June, 3.52; July, 3.95; August, 3.02; September, 2.44, and during the time of the experiment, June 8 to September 21, rain fell on forty-nine days. The pastures remained green, fresh, and luxuriant throughout the whole season. The grass, almost entirely blue-grass, grew continuously; but, owing to the gravelly character of the soil, the grass did not become soft and watery, as often happens in soils that are naturally more moist. Perhaps had there been the usual midsummer drought with its accompaniment of parched pastures, the results from the supplementary grain ration would have been more marked. (2) A striking feature of the experiment was the large increase in the percentage of fat in the milk of lot 2 during the period from Aug. 4 to Sept. 7 inclusive, and a similar slight increase in the milk of lot 1 for the same period. This period coincided almost exactly with the period of least rainfall and highest temperature of the whole summer. From Aug. 5 to Sept. 5 inclusive, there was but one rain of any considerable amount, with some half dozen light showers on various intervening dates. Thus in the only time during the whole course of the experiment in which the conditions approached those of an ordinary season, there seemed to be the greatest effect from the grain ration. (3) Another peculiarity that seems to be traced to climatic conditions was seen in the last two weeks of the experiment. Beginning on Sept. 6, more or less rain fell on every day but one till the close of the experiment on the 21st. During this period the weather was almost continually cloudy and what may be expressively termed "raw." From Sept. 7 to 21, the percentage of fat in the milk of lot 1 fell from 4.47 to 4.10, or nine per cent, while the fat in the milk of lot 2 in the same period, decreased from 5.77 to 4.61, or twenty per cent. (4) In view of the fact that a citizen of a neighboring State has been imprisoned for selling milk that was below the legal standard of twelve per cent of solids, it seems worth while to state that while, when the average analysis for three days is taken into account, the milk in this experiment was far above the required standard, yet there was one day when the milk from one lot fell below the legal requirement of 12 per cent total solids, and several others on which the percentage of total solids came dangerously near the "dead line." Had a sample been taken on that day by the State authorities the experimenters would have been liable to conviction under the law, and to a fine of not more than two hundred dollars and to imprisonment for not more than six months. It seems that no law can be just that fixes an arbitrary standard for the purity of milk which may depend upon the results of a single analysis.

— Cocoa-nut butter is now being made at Mannheim, and, according to the American Consul there, the demand for it is steadily increasing. The method of manufacture was discovered by Dr. Schlunk, a practical chemist at Ludwigshafen. Liebig and Fresenius knew the value of cocoa-nut oil or fat, but did not succeed in producing it as a substitute for butter. The new butter is of a clear whitish color, melts at from 26° to 28° C., and contains 0.0008 per cent water, 0.006 per cent mineral stuffs, and 99.9932 per cent fat. At present it is chiefly used in hospitals and other State institutions, but it is also rapidly finding its way into houses or homes where people are too poor to buy butter. The working classes are taking to it instead of the oleomargarines, against which so much has been said during the last two or three years.

— In a recent number of *Humboldt*, as quoted in *Nature*, Herr Fischer-Sigwart describes the ways of a snake, *Tropidonotus tessellatus*, which he kept in his terrarium in Zurich. It was fond of basking in the sun on the top of a laurel, from which it climbed easily to a high cherry-tree fixed against a wall, its night quarters. Sometimes, after lying still for hours, it would hasten down into a small pond (about four square yards surface) containing gold-fish, and hide itself for a long time, quite under water, behind some stone, or plants, the tongue constantly playing. When a fish came near, the snake would make a dart at its belly. Often missing, it would lose patience, and swim after the fishes, driving them into some corner, where it at length seized one in the middle of the belly, and carried it to land, much as a dog would a piece of wood. Curiously, the fish, after being seized, became quite still and stiff, as if dead. If one then liberated it, the skin of the belly was seen to be quite uninjured, and the fish readily swam away in the water. The author thinks the snake has a hypnotic influence on its prey (and he had observed similar effects with a ringed snake). It would otherwise be very difficult for the snake to retain hold of a wriggling fish. The snake usually carried off the fish some distance to a safe corner, to devour it in peace.

— The International Marine Conference at Washington concluded its labors with the end of the year. The work it has done, though not so much as had been anticipated, will be of value to the merchant marine of all maritime nations. The chief work of the conference related to the rules of the road at sea and the prevention of collisions. One important reform recommended is uniformity in the buoyage system in all parts of the world, and others

relate to uniformity in surveying laws; in the reporting, marking, and removing of dangerous wrecks, derelicts, and other obstructions to navigation; and in the transmission of weather signals and storm warnings. This, we trust, is only the first of a series of similar conferences.

— The November meeting of the Chicago Institute of Education was quite a lively affair in comparison with the usual solemnity of the occasion, as we learn from *Intelligence*. The paper was by Fernando Sanford of the Englewood High School on the "Disciplinary Value of Scientific Study." It was a well-knitted plea for the genuine study of science, and for the formation of the habits of seeing and stating propositions that the actual study of nature produces. It deprecated the usual text-book study of science as unworthy of a place in any respectable school. The paper laid considerable stress on the idea that every pupil should interrogate nature for himself and find his own answers; that every subject should be taught by investigating it as if nothing had before been known about it. The president, Mr. Howland, wanted to put in a few words which he thought it possible the audience would not wish to remember more than three minutes, and he hoped they would not. Nevertheless, he wanted to say, that, while it was a charming paper, possibly the best one on the subject he ever heard or read, he did not believe in its doctrine at all. He did not believe that it is so necessary or so advantageous for children to handle the actual objects, to make so many experiments, to verify so many statements. The proposition that school children should investigate departments of science as if nothing had previously been known about them, and that the science learned from text-books is worthless, struck him as absurd. The other day he visited a school in which the pupils were studying a squirrel. He listened to their discovery of the number of toes it had, the way its joints bent, etc., etc. After all, what good did it do them? What did they learn about the squirrel that they did not know before? If children had got to study science just as if the world had already learned nothing, where is the blessing of living in this nineteenth century? of inheriting the accumulated intelligence of the ages? He didn't believe we should throw away all that past generations have discovered; in other words, all our books, and start our pupils in the study of nature where the human race began. He believed he had as clear and complete an idea of a camel before he ever saw one as he had afterwards. Talk about pupils proving that a floating body will displace its own weight of the fluid! What for? He never proved it or saw it proved. Yet he knew it, knew it as absolutely as if he had performed the experiment a hundred times. He didn't believe there ever was a time when he didn't know it. And so of the great mass of facts and principles which the paper would require to be taught inductively. Life is too short for us to indulge so freely in the time-wasting process of induction. He didn't believe in it. Let the pupil have the full benefit of his inheritance, and start with the present instead of with the beginning of time. And besides, man himself is the important element in this world. He and his institutions are more worth studying than all the rest beside. He would much rather study man than the rocks or the trees. It would be a misfortune if the advice of the paper were followed in our schools.

— The endeavor to establish a botanic garden in the City of Montreal, three years ago, though it met with great opposition at the time, says *Garden and Forest*, is likely to be realized at no distant day, though the original plan has been greatly modified. For some time past efforts have been directed toward the establishment of a garden in connection with McGill University, and the end has been so far attained that a portion of the grounds, embracing somewhat more than three acres, has been set apart for that purpose, the intention being to occupy eventually about six acres. During the past season a pond for aquatic plants has been constructed, and walks and beds have so far been laid out that planting will begin with the opening of spring. There are already in the grounds upward of one hundred native and exotic trees and shrubs, besides a fair collection of herbaceous plants. These will be added to from the native flora. There are also on hand several hundred specimens raised from seed received from the Imperial Botanic Gardens of St. Petersburg, and the Royal Gardens, Kew, all of which have been raised and cared for in private grounds and conservatories. Active efforts are being made for the construction of a conservatory, which it is hoped may be erected soon. It is the intention to adapt the garden to the purposes of collegiate work and the representation of the native flora, together with such exotic species as may be hardy and prove otherwise desirable.

— According to the San Francisco *Examiner*, Mr. Adolph Sutro is experimenting with cinchona-trees on his estate on the neighboring sea-coast. He hopes to acclimatize at least some of the varieties from which quinine is produced; and, if so, will doubtless be more than repaid for his enterprise.

— The "flower festivals" of the Japanese are often referred to without clear explanation of their number and character. As explained in *Garden and Forest*, five are annually celebrated. At the New Year's feast, on the first day of the first month, the chief plants used are bamboos, firs, *Prunus Mume* and *Adonis Amurensis*. The first two are set by the house-door, and the others are displayed in the living-room. At the second, or "girls' festival," which is held on the third day of the third month, *Prunus Persica* is the favorite plant. At the third, or "boys' festival," on the fifth day of the fifth month, one sees chiefly the shobu (*Iris lavigata*); while at the fourth, or "ladies' festival," on the seventh day of the seventh month, no flowers are favored, but songs are written on bits of paper fastened to leafy stalks of bamboo and set on high in the garden. The last feast occurs on the ninth day of the ninth month, and then the chrysanthemum is honored by old and young alike. These various celebrations have always been held in accordance with the dates of the old national calendar; but now that the Gregorian calendar has been introduced, it is found difficult to procure the proper plants on the proper day. The great imperial feast in honor of the crysanthemum has no special time set for it, but is held whenever the flowers in the Emperor's garden are in most perfect condition.

— Those who have read of the Rauhe Haus at Horn, near Hamburg, Germany, that remarkable and unique institution of Immanuel Wichern, will recognize in it a prototype of that little industrial community which more than two years ago was established in Columbia County, New York, under the name, "The Burnham Industrial Farm." The two are alike in purpose, in spirit, and in the methods of training employed. Wichern's experiment is, however, widely known, and its success has been demonstrated in its beneficent results, while Burnham Farm is yet in its infancy, unknown even to many of the good people of our own State. The Burnham Industrial Farm, as described in *The State Charities Record*, was organized to save boys who are tending toward the criminal classes. The lack of proper classification or facilities therefor in the reformatory institutions of the State, forcing the boys committeed who have not yet become depraved or incorrigible into the companionship of those in whom criminal habits are fully developed, was the condition which was strongest in urging the establishment of a home like this, far removed from the city, on a large farm in healthful surroundings, where these truant and vagrant boys not yet incorrigible might be sent, might live under good moral influences and have opportunity for the training of hand and mind. The farm, formerly an old Shaker settlement, comprises 580 acres of land, under a fairly good state of cultivation, in a "region of pure air and lovely fields and forests." Lake Queechy bounds it on one side and the mountains look down upon it. The farm is organized on the family plan. The cottages left by the Shakers have become the home each of a group of boys. The system of awards and punishments is that of Mettray. There is a department of manual training for the boys where those showing special aptness are taught full trades, and others prepared to enter trades as advanced apprentices. Some will be taught farming, some gardening, and all, that labor is ennobling. The discipline is firm yet kind, and each boy has some one interested in him individually. There are no walls about the farm; everything is free and open. Though established less than three years ago there are already good results to be seen. Fifty-two boys have been at the farm, and of those more than twenty have, after a training of a year or more, been sent back to their parents or to places found for them, cured of bad tendencies.