harm to the recipient. History, and I may add personal observation, shows that the same general law holds true to some extent in universities. I believe they should not award fellowships to men fresh from college (save in the very rarest cases), unless they were able to guide and direct as well as to follow their work in every detail. A fellow should be encouraged and stimulated by a daily and familiar intercourse with the professors. His methods, reading, and researches should be kept at their best, and the entire resources of the institution should be a soil for his most rapid and helpful growth. Students thus served, even if their gratitude does not prompt them, as in some late instances in Germany, to study, revive and try to conform with piety to the ideal of ancient and almost forgotten donors, whose provisions they enjoyed, will not be lacking in appreciation. To appoint a man to use such funds in electing among undergraduate courses, or to take his chances among the confusing multifarious subjects offered in foreign institutions is, I believe, in most cases of small utility, and in some cases that I know, positively harmful. May the methods of exclusion we are studying be so effective that neither our precious funds nor the precious energy of our instructors be wasted upon the idle, stupid, or unworthy students, now too often exposed in vain for four years to the contagion of knowledge.

"Education used to be a question for ladies and for schoolmasters," said a French statesman last spring, but it is now not only a question of state, on which the support of all great institutions depends, but the great question into which all others issue if profoundly discussed or studied. So greatly do republics need the whole power of education, and so serious is their struggle for existence against ignorance and its attendant evils, that it has well been said that the problem whether this form of government be permanent is at bottom a question of education. But monarchies are no less dependent upon the education of their leaders and servants. In his famous address declaring that if Germany was ever to be free and strong, it must be by becoming the chief educational state of Europe, must realize the platonic republic in which the education of its youth was the highest care of the rulers, Fichte laid down the policy which has been one of the chief causes of the wonderful development of that country. Moreover, evolution, which shows that even life itself is but the education of protoplasm, cells, and tissues, that the play-instinct in children and the love of culture in adults not only measure the superfluous individual energy over and above that required by the processes necessary to life, but are perhaps largely the same, also makes it plain that the hunger for more and larger education of life is but the struggle of talent to the full maturity and leadership which is its right.

For myself, I have no stronger wish or resolve than that, in the peculiarly arduous labors I expect, I may never forget that this institution should be a means to these high purposes, and not degenerate to an end in itself: and may it be as true of our graduates to remotest time, as it is of us in a unique way and degree to-day, that we could not love Clark University so much, loved we not science and education more.

HEALTH MATTERS.

The Influenza.

A SINGULAR characteristic of the present epidemic of influenza is its delay in visiting the British Isles. It seems to have been rampant in Paris and in Germany for some time before it crossed the channel, and victims are claimed for Boston even before the existence of the disease in England was acknowledged. This naturally raises the question whether it is a disease really brought from a distance. Is it anything more than the general prevalence of catarrhal affections, of colds and coughs, which the time of year, and the remarkably unsettled weather we have lately experienced, make readily explicable without any foreign importation? Indeed, is influenza, after all, anything more than a severe form of the fashionable complaint of the season?

To answer the last question first, and so to put it by, there can be little doubt that influenza is a distinct, specific affection, and not a mere modification of the common cold.

The symptoms, the history of the disease, and its distribution, all justify us in treating it as a distinct and specific disease, which when it is prevalent will rarely be mistaken, though, with regard to isolated and sporadic cases, difficulties of diagnosis may arise. About its nature, or its affinities with other diseases, it is unnecessary to speculate. It will be sufficient to inquire what its recorded history in the past justifies us in expecting as to its behavior in the future. There are few cases in which history proves so important an element in the scientific conception of a disease as it does in that of influenza. For hardly any disease shows a more marked tendency to occur in epidemics — that is, in outbreaks strictly limited in point of time. After long intervals of inaction or apparent death, it springs up again. Its chronology is very remarkable. Though probably occurring in Europe from very early times, it first emerged as a definitely known historical epidemic in the year 1510. Since then, more than 100 general European epidemics have been recorded, besides nearly as many more limited to certain localities. Many of them have in their origin and progress exhibited the type to which that of the present year seems to conform. We need not go further back than the great epidemic of 1782, first traceable in Russia, though there believed to have been derived from Asia. In St. Petersburg, on January 2, coincidently with a remarkable rise of temperature from 35° F. below freezing to 5° above, 40,000 persons are said to have been simultaneously taken ill. Thence the disease spread over the Continent, where one-half of the inhabitants were supposed to have been affected, and reached England in May. It was a remarkable feature in this epidemic that two fleets which left Portsmouth about the same time were attacked by influenza at sea about the same day, though they had no communication with each other or with the shore.

There were many epidemics in the first half of this century; and the most important of them showed a similar course and geographical distribution. In 1830 started a formidable epidemic, the origin of which is referred to China, but which at all events by the end of the year had invaded Russia, and broke out in Petersburg in January, 1831. Germany and France were overrun in the spring, and by June it had reached England. Again, two years later, in January, 1833, there was an outbreak in Russia, which spread to Germany and France successively, and on April 3, the first cases of influenza were seen in that metropolis: "all London," in Watson's words, "being smitten with it on that and the following day." On this same fateful day Watson records that a ship approaching the Devonshire coast was suddenly smitten with influenza, and within half an hour forty men were ill. In 1836 another epidemic appeared in Russia; and in January, 1837, Berlin and London were almost simultaneously attacked. Ten years later, in 1847, the last great epidemic raged.

Many interesting points are suggested by this historical retrospect. What is the meaning of the westward spread of influenza, of cholera, and other diseases? Is it a universal law? To this it must be said that it is by no means the universal law, even with influenza, which has spread through other parts of the world in every kind of direction, but it does seem to hold good for Europe, at least in the northern parts. The significance of this law, as of the intermittent appearance of influenza, probably is that this is in Europe not an indigenous disease, but one imported from Asia. Possibly we may some day track it to its original home in the East, as the old plague and the modern cholera have been traced.

As regards, however, the European distribution of influenza, it has often been thought to depend upon the prevalence of easterly and north-easterly winds. There are many reasons for thinking that the contagium of this disease is borne through the air by winds rather than by human intercourse. One reason for thinking so is that it does not appear to travel along the lines of human communications, and, as is seen in the infection of ships at sea, is capable of making considerable leaps. The mode of transmission, too, would explain the remarkable facts noticed above of the sudden outbreak of the disease in certain places, and its attacking so many people simultaneously, which could hardly be the case if the infection had to be transmitted from one person to another.

Another important question, and one certain to be often asked, is suggested by the last; namely, whether influenza is contagious. During former epidemics great care was taken to collect the ex-

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