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Attention is called to the "Wants" column. All are invited to use it in soliciting information or seeking new positions. The name and address of applicants should be given in full, so that answers will go direct to them. The "Exchange" column is likewise open.

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WHEN JOHNS HOPKINS UNIVERSITY was first opened, it was feared by some that it would have to depend for support on the funds left it by Johns Hopkins, and that others who might give freely to any of the older educational institutions would hesitate about aiding an institution which is so young as Johns Hopkins University, and whose prosperity is yet a credit to the memory of the founder. The events of the last few months show, however, that Johns Hopkins University has entered on a second stage in its development. It is known to all that when, on the stopping of the dividends on Baltimore and Ohio stock, it became imperative that funds be raised to supplement the income from other sources, enough admirers of the stand the university has taken among American educational institutions were found willing and able to give one hundred thousand dollars to enable the university to maintain the high grade of teaching and investigation so characteristic of it from the start. This was well enough, so far as it went; but this seems now to have been merely No. 1 in the list of generous gifts to the university this year. There followed the gift of twenty thousand dollars by Mr. Eugene Levering to the Christian Association, which has been used in erecting a building, now nearly completed. Mr. John W. McCoy gave the university, upon his death, more than one hundred thousand dollars, a magnificent library, and made the university the residuary legatee of a large estate, from which it will realize another considerable sum. The gift of twenty thousand dollars to found the Turnbull lectureship of English poetry preceded the bequest of Mr. McCoy, and filled a long-felt want in the English department. In all, during the last six months, the university has been the recipient of more than four hundred thousand dollars, including the amount that will probably be realized from the residuum of the McCoy estate. This does not include the McCoy library.

A most satisfactory gift, as showing approval of the work done by Johns Hopkins University, is that of Mrs. Caroline Donovan, which we chronicle this week. Mrs. Donovan in her letter stated she had observed with satisfaction the work at the university, and as an evidence of her appreciation she asked the trustees to accept a gift of one hundred thousand dollars, provided that the income thereof should be used in the endowment of a chair in the university. Mayor Latrobe of Baltimore, the legal adviser of Mrs. Donovan, through whom the gift was announced to the university trustees, said, in his presentation address, "My friend, Mrs. Caroline Donovan, directs me to say in this connection, first, that she has written two letters, — one of them designating English literature, the other not naming any particular branch of instruction for which the chair is to be established. Her preference is thus shown for the study of English literature, but at the same time she does not wish to encumber the gift with this condition, and therefore leaves it to be decided by the university, she desiring to found such a chair as may be of the most practical service. From her conversations with me on the subject, I can say, however, that Mrs. Donovan would greatly prefer if the decision of the university in this connection was not for instruction in any of the so-called 'dead languages.' Second, Mrs. Donovan desires me to say that the money she gives is her own, made by herself, and not by gift or devise. Third, She also instructs me to say that before making this gift she has liberally provided for all those having any claim upon her through blood relationship or otherwise. No just complaint can therefore be made by any one, that he or she has been wronged by her thus disposing of her own money." Mrs. Donovan is the widow of William Donovan, who died several years ago. She is about eighty-six years of age, and resides in Baltimore County, a few miles from Catonsville, and is a liberal giver to many worthy charities, all of which she does secretly, in a very unostentatious manner. Her greatest fear was of having the matter mentioned in the newspapers, but Mr. Latrobe told her that it was impossible to keep any thing from them. When Mayor Latrobe suggested the gift should be called "The Caroline Donovan Chair," she objected on the ground that a chair bearing a woman's name was unusual. This succession of gifts marks the advent of a growing prosperity in the life of this university, of which all Americans are proud.

WILL SCHOOLS AND COLLEGES take advantage of the opportunities we offer them to make known, free of all cost, their needs as to additional teachers? We want to publish such items as news, and news of very great interest to many of our readers, but we find it next to impossible to rouse the school owners and managers to use what we offer. So far, in the several months that our "Want" column has been open, but one, "M. H.," has availed himself of it to advertise for a teacher. That he did so to good purpose may be judged by the following extract from his letter: "I have to thank you and your admirable paper for securing a most competent man as teacher of natural science in Ogden College. I have had, I suppose, thirty or more applications, and they are still coming." This feature has been urged on us occasionally; but, to make it of due value, there is need of a great waking-up on the part of those most interested. The backbone of any of the numerous engineering papers published in this country is the weekly list of new engineering undertakings, showing manufacturers and others where they can place their goods. The goods of some of our readers are their teaching capacities, and we hope that both

teachers of science and employers of such teachers will use the columns of this weekly to make public their needs, that they may be the better filled. We appreciate that the commercial spirit is weak in the class to which we are appealing, but it is hard to believe that it is so weak as not to lead them to write us a postal the contents of which when published may lead to an improvement in their position.

COL. M. H. CRUMP of Bowling Green, Ky., is carrying on experiments to see whether the air from the so-called Grand Avenue Cave cannot be used for regulating the temperature of a proposed hotel at that point. We have already called attention to these experiments, and Col. Crump has advertised in *Science* constantly for some weeks for information on the use of cave air for such purposes, but none of the readers of *Science* have much to offer. The scheme is novel, and the prominent geologists of the country who have been consulted have expressed considerable interest in the outcome.

THE HORN-FLY.

THE knowledge of this pest now in the possession of the division of entomology of the United States Agricultural Department is sufficiently far advanced to enable it to present a preliminary article in the last number of *Insect Life*, giving the main facts ascertained. A more complete article will be published in the annual report.

Attention was first called to this pest in September, 1887, when Mr. I. W. Nicholson of Camden, N.J., wrote to the department, under date of Sept. 22, as follows: "Herewith I send some specimens of flies which appear to have made their first appearance about the middle of August. They are very annoying to cattle, but rarely settle upon the horses or mules. They gather in patches or clusters, particularly upon the legs, and are very active. I should like to know if they are common in other parts of the United States. They appear to be very numerous in all the counties near Philadelphia, yet I have seen no person who has observed them before this season."

Later letters the same season from Mr. Nicholson mentioned the common habit of clustering upon the horns, and the fact that after a severe frost in the middle of October the fly disappeared.

May 15, 1888, the same gentleman wrote that the flies had promptly made their appearance May 10, or a little before, in great numbers. A few days later the same insect was heard of in Harford County, Md., through Mr. George R. Stephenson, who reported its occurrence in that locality the previous summer.

By the summer of 1889 the pest had extended in numbers much farther to the southward, and the department was early informed of its occurrence in Harford and Howard Counties, Md., and Prince William, Fauquier, Stafford, Culpeper, Louisa, Augusta, Buckingham, and Bedford Counties, Va. The alarm became great. Considerable time has therefore been devoted to the study of the habits and life-history of the insect. This was done mainly by Mr. Howard, who made a number of short trips to The Plains, Warrenton, and Calverton during June and July. Later in the season Mr. Marlatt assisted in the work, which had been greatly facilitated by Mr. G. M. Bastable, Mr. David Whittaker, Mr. M. M. Green, and Mr. William Johnson, and particularly by Col. Robert Beverly. Aug. 20, Mr. Howard found the flies practically in Washington, — in Georgetown, — and the next day Mr. Marlatt found them in Rosslyn, at the Virginia end of the Aqueduct Bridge, so that further trips for material were not necessary.

The result of the summer's observations by these two gentlemen is that the life-history of the insect has been accurately made out from the egg to the fly through several consecutive generations, and that substances can be recommended which, from their experience, will keep the flies away for from five to six days; while from the life-history a suggestion as to preventives is made, which, under certain circumstances, will prove undoubtedly of great benefit.

Since this insect was first brought to notice, it has been felt that it was an imported pest. Its first appearance in the neighborhood of Philadelphia, and its gradual spread southward, have favored this idea. The fact that in this country it has spread with much greater rapidity towards the south than towards the north would seem to indicate that it is a south European species.

The exact time and place of the introduction, it is impossible to ascertain. Upon its first importation in small numbers, it was probably for some time unnoticed, and its first noticeable appearance may not have been at the point of importation.

All imported cattle from Europe pass through the quarantine stations of the Agricultural Department at either Littleton, Mass., Garfield, N.J., or Patapsco, Md., and an examination of the records develops one or two points of interest. Since 1884 only ten head of cattle have been imported into the country direct from France. All of these have passed through the New Jersey station, but their ultimate destinations have in no cases been within the regions now infested with the fly. The other importations have been from points like Antwerp, London, Amsterdam, Hamburg, Glasgow, Liverpool, Southampton, Hull, Rotterdam, and Bristol. The year 1886, immediately preceding the appearance of the fly, was marked by quite an extensive importation of Holsteins from Amsterdam and Rotterdam and London, through the Garfield station, mainly for parties in New York City. Over three hundred were imported, and an interesting point to investigate will therefore be the occurrence or non-occurrence of this fly in Holland.

The popular name which is here adopted — the "horn-fly" — has the sanction of popular use. It is sufficiently distinctive. The names of "Texas fly" and "Buffalo fly" and "Buffalo gnat" are also in use in some sections, and indicate an impression that the insect came from the West. Dr. Lintner uses the term "cow-horn fly."

The most prominent of the popular errors is the belief that the fly damages the horn, eats into its substance, causes it to rot, and even lays eggs in it, which hatch into maggots and may penetrate to the brain. There is no foundation for these beliefs. As will be shown later, the flies congregate on the bases of the horns only to rest where they are not liable to be disturbed. While they are there, they are always found in the characteristic resting position. Where they have been clustering thickly on the horns, the latter become fly-specked, and appear at a little distance as though they might be damaged; and it is doubtless this fact which has given rise to the erroneous opinions cited.

Mr. Howard's first impression upon entering the field, that the eggs would be found to be laid in freshly dropped dung, proved to be correct. He brought to Washington with him from Calverton dung dropped on the night of July 28, and exposed in the field during the 29th; and from this dung the first adult flies, five in number, issued Aug. 7, only ten days from the laying of the eggs. This settled the point of place of oviposition and breeding. It seemed probable that this was the only substance in which the species breeds, as indeed it is the only likely substance which exists in sufficient quantity through the pastures to harbor the multitudes of flies which are constantly issuing through the summer. However, many living females were captured, and placed in breeding-cages with horse-dung and decaying animal and vegetable material of different kinds, each isolated; and it resulted that a few ovipositied in the horse-dung, and four flies were reared from this substance. There is no evidence, however, that in a state of nature the flies will lay their eggs in any thing but cow-dung.

The time and manner of oviposition were puzzling at first. After hours of close watching of fresh dung in pastures close to grazing cattle, not a single *Hæmatobia* was seen to visit the dung, much less to lay an egg. This close observation was made at all times of the day from dawn till dusk without result, while breeding-cage experiments were all the time proving that nearly all fresh droppings contained many eggs. With some hesitation, therefore, the inference was made that the eggs were presumably laid at night.

The question was, however, considered by no means settled; and, on the discovery of the fly at Rosslyn, Mr. Marlatt was directed to make especial observations upon this point. The first result was, that careful examination of dung dropped in the early