THE AURORA.

IOWA STATE AGRICULTURAL COLLEGE

OCTOBER, 1886.

TABLE OF CONTENTS.

LITERARY:
- Psyche: 163-164
- Was Bacon a Poet?: 165-167
- The Discipline of Duty: 167-169

SCIENTIFIC:
- Protective Appliances of Flowers
- Against Unbidden Guests: 169-173

EDITORIAL: 173-175
- Exchange Notes: 176
- News From Other Colleges: 176-177
- LOCAL: 177-178
- PERSONAL: 179-180
- ALUMNI: 180-181
- DIRECTORY: 181-182
- ADVERTISEMENTS: 182-186

AMES, IOWA:
IOWA STATE AGRICULTURAL COLLEGE.
1886.
Sometimes I have seen in the sunlight gleam
A beautiful butterfly bright
Mid woodland bowers and fragrant flowers
Like a messenger of light;
In silvery sheen, like the fairy queen
Titania, queen of the air,
Hither and thither, I hardly knew whither,
It flitted in beauty there.
In the leafy green I have sat and seen
The butterflies come and go,
In midair meeting, each other greeting
With gladness, but parting slow—
Their wings in motion, like waves on the ocean
When gently they rise and fall,—
In beauty flitting past where I was sitting
’Neath the dome of the woodland hall.
And I have wished ever that depart they would never
From the sylvan scene again,
With its leafy bowers and fragrant flowers,
But alas, my wish was in vain.

Sometimes I ponder, in reverent wonder,
As I look at the nebulous light,
Whether, when dreaming, and the bright stars are gleaming
   Attending the queen of the night,—
My soul then starting, from the body departing,
   Speeds on a journey through endless space—
From star to star, like a light from afar,
   Alone a vast pathway to trace,—
If from world to world, with wings unfurled
   It flit mid unseen powers—
Mid swift-winged cherubim angels and seraphim,
   Like the butterfly mid the flowers,—
Where a melody glorious, from powers victorious,
   Resoundeth for evermore,
The music in motion like a mighty ocean—
   A sea without a shore.—
O what wonderful things it sees as it sings,
   And the music of the spheres,
On earth never heard, like a soothing word,
   It with mystic magic cheers!—
But when the gleam of the morning beam
   Streams through the clouds of our world
With the speed of thought to my body is brought
   My soul—and its wings are furled.

* * * * *

Fast flit the years, with their joy and tears,
   And one by one we go
To where no chime of the bells of time
   Is heard, by friend or foe.
O God, may I never from this earth dissemble,
   Forsaking this temple of clay,
Before unto Thee I have come to be free
   From the fetters of sin alway.
When Thine angel then calleth, like a leaf that falleth,
   To Thee I will gently go,
And my wings—as of old of fair Psyche was told—
   Will be pure as the driven snow.
For Psyche is I, who never will die,
   But through endless æons of days
With white-clad legions in heavenly regions
   Sing holy anthems of praise.
Near the Jasper sea we will ever be
   As sung by prophets of old,
And our banners unfurl o'er the Gates of Pearl
   Of that wonderful City of Gold.
Like a bygone dream, our earth-life will seem
   On that bright celestial shore—
Where God alone, on His great white throne
   Reigneth for evermore!
WAS BACON A POET?

It is said by Hallam that no books prior to those of Lord Bacon "carried mankind so far on the road to truth; none have obtained so thorough a triumph over arrogant usurpation without seeking to substitute another; and he may be compared to those liberators of nations who have given them laws by which they might govern themselves, and retained no homage but their gratitude."

In the beginning of his career Bacon took "all knowledge to be his province," and his works are an abundant evidence of his success in his chosen undertaking. His scientific works wrought a reformation in the domain of Science, his moral and historical works are felt no less in their department of knowledge, and his miscellaneous essays are quoted as undeniable authority on any subject upon which they treat.

So universal is his fame that his name is regarded as typical of all that entitles the English nation to the "intellectual respect and substantial gratitude of mankind." As he was born in an atmosphere of nobility and with great natural endowments, and at a time when true worth was valued at its true value, he had many inducements to make the most of himself; even if he had not been urged onward and upward by his own spirit of genius. Posterity has awarded Francis Bacon with honor equal to, or greater, than that which is possessed by any similar writer. He has been praised and blamed according to his deserved merits, and the same justice will be shown to every claim put forth for the products of genius. All men's production bear the stamp of the writer's mind with its peculiar characteristic. What, then, is the surprise and incredulity aroused in the minds of men when the world is startled by the announcement that Francis Bacon composed the plays generally attributed to William Shakespeare.

Granted that Bacon's mind was one of the first of the age, and his capabilities extensive, yet where through all the works accredited to be his do we find a single poetic stanza of his own making, or even an attempt at poetry. Are not the mass of books already attributed to him sufficient to fill the demands made upon a brilliant mind? If in addition to these there is added all that stupendous amount of thought contained in the thirty-eight plays of Shakespeare, the result is entirely too incredulous for this credulous world. These latter, in themselves, are considered as almost inconceivable as the product of a single mind, and that mind Shakespeare's. The idea that the whole amount of work completed by both Bacon and Shakespeare belongs to one man is certainly a ridiculous one. Two great minds happened to be contemporaneous; therefore to one belongs the glory, the other was nothing.

Ridiculous as it is, the thought is entertained by a few men, as has recently come to light. They are convinced that as we have no adequate knowledge of Shakespeare as a man, he could not have written the plays. He "lived, died, and was buried." That is all the world knows of his life, but the mighty works left by him tell us of his mighty mind. No reasonable person should imagine that because the knowledge of him is meagre his honor must be given to one of whom we know everything.

Among the most prominent of these adherents of this idea is Nathaniel Holmes of Cambridge, Mass. He has compiled two volumes of the results of his researches, and wishes to prove the truth of his theory. We will notice some of the arguments brought forward. Among them is noticed a section de-
voted to the establishment of the idea that Bacon was a poet. In reviewing Bacon's personal history, he claims to have found evidences that he was much addicted to writing poetry, or sonnets; that several of these were addressed to the queen, others to the Earl of Essex; and still others contained incidents of his own life, and quotes that at one time, when the queen intended making a visit to Bacon at his home, he, though he did not profess to be a poet, prepared a sonnet, directly intended to perfect the queen's reconcilliation with the earl, who had somewhat fallen from grace. We are not prepared to say that Bacon never wrote poetry. Great men often try their powers in this way. But this much is certain, that in all the books and articles devoted to Bacon's capabilities there is not to be found one reference to his poetic ability.

It is again stated that critics find it impossible to reconcile the sonnets with the life of William Shakespeare; that it is doubted whether any true estimation could be drawn from the sonnets of Shakespeare respecting the life and feelings of the author. Mr. Holmes thinks that no such doubt could arise in the mind if they are consid­ered as the work of Francis Bacon. He thinks that in ideas, opinions, modes thinking and feeling, style, manner and language they bear the impress of Ba­con's mind.

It is a difficult matter to try to an­swer these arguments when we have nothing of the same nature with which to compare them. If we had any knowledge of any Baconian sonnets which were undeniably his, then we might do so. These dramatic plays and the philosophical works of Bacon are two things so entirely unlike that they will not admit of comparison.

Knight in his studies of Shakespeare does not attempt any such reconcilia­tion, but thinks these sonnets were not arranged by the author for publication. They were obtained by some one, who had them published as he had arbitra­rily arranged them. He thinks, as does Holmes, that they were dedicated to William Herbert, who was known to be Shakespeare's friend.

Possibly it is easy to accord these poems with the life of Bacon whose inner and outer life is universally known; but is it honest to think that they will not also accord with the life of one less known personally?

Bitterly disappointed at his unsuccess­ful attempt to secure a courtly po­sition from Queen Elizabeth, Bacon withdrew to his country seat and there occupied his time in writing. Some pas­sages from, "Hamlet" and "Timon of Athens" are cited as references to what he termed his disgrace.

It would be more natural to suppose that these passages should not be thought of as expressing any feature of the life of anyone. They are the pro­ducts of a wonderful imagination which worked upon facts gathered by the au­thor from history. He lived wholly with his characters. Their life was his life. He wrote as he imagined the character should act under the circum­stances.

The next argument brought up is that Bacon's prose writings everywhere exhibit the highest qualities of a poet—a philosophic depth of insight and powerful imagination; a brilliant grasp of metaphor, clearness, brevity and beauty of expression, sovereignty in all the realms of thought and great command of language. These have al­ways been recognized as the wonders of Shakespeare. These are, also, in perfect accordance with the writings of Bacon. The education of Shakespeare could scarcely be compared to that of Bacon in point of actual training; for undoubtedly it was inferior; but he was ignorant of no department. He ab­sorbed what he read, and heard, and, unlike any other mortal, was enabled by his extraordinary genius to master all things to their very depths and tri-
umphantly to reveal it in everlasting poetry. It was by the abundance of his genius over that of other men that he was able to do this.

Another idea advanced is that Bacon knew that through the stage he could better impress his ideas upon the common people, thereby instructing them, and at length the old errors and superstitions would be undermined without knowing they had been attacked.

Possibly this is the most plausible reason why he should take such a departure from his usual method, for the stage was an important element in the instruction of the public at that time. But Francis Bacon had too many other “irons in the fire” with his political schemes, philosophical writings and law studies, to have so thoroughly mastered this art; while Shakespeare’s whole life was spent in and around the theater, so that he was versed in its minutest details and adapted his thought to suit his profession.

These are substantially the arguments gathered from a hasty study of Holmes’ theory. The idea is so unreal and appears so strained that it is difficult to have patience enough to give it careful attention. Bacon was not noted for any excessive modesty toward anything that would increase his popularity. Had he laid claim to these plays during his lifetime, his mind would have been placed above that of any finite being. He certainly could have had no reason for remaining silent.

---

**THE DISCIPLINE OF DUTY.**

C. F. CURTIS.

The battle of life is constantly presenting new phases. Humanity is ever changing. There are times in the affairs of men that fathom their lives for eternity. There are critical points in the life of every individual that fix his future destiny. There are harbors on the great ocean of life from which proceeds the frail bark of humanity either toward grandeur, sublimity and virtue, or toward degradation, misery and ruin. In selecting this course the human mind meets one of the greatest problems with which it is ever called to grapple. Man can only achieve strength of purpose by his own free will. It depends upon his own choice whether he will be pure and noble on the one hand, or low and grovelling on the other. An irresistible instinct carries man toward action, and in every life, in every conflict, in every difficulty, the innate sense of duty is the corner stone of virtue. In all the pages of history there does not occur another such a word as DUTY. It penetrates the most sequestered spots of the universe. Long before it was written on tables of stone by the hand of an omnipotent God amid the flashing heavens, the rolling thunders, and the smoking mountains, it was written upon the hearts of men.

Man is but a paragraph in the great book of nature. Each paragraph is a part of one harmonious whole. But the pages of our own lives are of the greatest importance. The life of each individual tells upon the whole life of society. “Men die, but their influence never.” It lives forever in our race. While the body moulders and disappears, the deed leaves an indelible stamp and moulds the thought and will of future generations. We are bound by the chains riveted about us, and we are forging chains to bind our posterity.

“Men are always inclined to make the best bargain they can with morality.” They have always considered as strictly obligatory only those actions without which social order is impossible and the security of all is endangered. But duty extends beyond this realm. It towers above necessity. Yet it enslaves no one. Whenever it abridges the rights or principles of an
individually or community, then it ceases to be a duty.

_Human personality has been inviolable._ No duty to man or state ever required a sacrifice of dignity or honor.

On the other hand it is the law of duty which imprints upon man, upon all his faculties, and above all upon his liberties the august character with which it is itself invested. It is at once an elevating and a sustaining power.

At the same time the course to which duty points is not always the easiest. Glory is not won by soft and dainty hands. No heavier curse could be placed on man than the gratification of his desires without effort. The feeling that life is destitute of any motive or necessity for action has wrought the downfall of republics, the overthrow of kingdoms, and the ruin of nations. So in the course of duty are found many adversities. They reveal to us our powers and call forth our energies. Character, like the sweet herbs, gives forth the finest fragrance when bruised. Our antagonist is our helper. Adversities may intimidate the weak, but they act only as a wholesome stimulus to men of resolution and valor. The history of adversity is but the history of all great and good things that have yet come to men.

* * * And still duty is an enemy as well as a friend. It never comes to us unattended by temptation. But like all other foes, when once defeated, leaves us stronger for the next, and the greater the enemy the more glorious the victory. The power of will is a divine gift strengthened by proper use, in overcoming temptations. Nor does this gift come alone to those in positions of influence and power in public life. The purest and most exalted duty is done in secret and without the sight of men. The noblest biographies are not always written.

If there is one thing this world admires more than another, it is the man who has the courage to stand for right because it is right, whether it be in the courts as a lawyer, through the press as a journalist, in the legislative hall as a statesman, in the church as a Christian, or in the house as a man. Such a man was Martin Luther, who said, “I will go to worms though devils combine against me as thick as the tiles on house tops.” Such a man was John Howard. His career throughout was a striking illustration of devotion to duty. His subl ine life proved that even physical weakness could remove mountains in the pursuit of an end recommended by duty. No toil, no danger, no bodily suffering could turn him from that great object of his life. Such a man was Lincoln. Dut y was to him the one controlling influence, the one unifying purpose running throughout all his work. It was that motive which actuated him in striking the fetters of bondage from four million souls. Emancipation came not to him like a dream. It was a problem over which he labored for months. At last he exclaimed, _It is right! Issue it, and leave the result to Him._ From the path of duty have been plucked the brightest diadems in the history of our country.

In this, as in all ages, the man who dares to think for himself and to act independently does a service which he owes to God and to mankind.

When we turn over the historic pages and trace the rise and fall of nations and empires, we at once observe that it is from the inborn dictates of conscience and the inspired principle of duty that the finest growths of character have arisen. If we turn to the historic pages of our own country, the recognition of duty comes to us from the silent graves of the half million dead whose spirits are now hovering in faithful vigils over the destiny of this republic; from every home and fireside wherein virtue dwells, from all that is pure, manly and good, and forming in one grand solemn concourse, marches down the line of ages, serving as a
light to guide and a rod to check the erring of generations yet unborn.

**SCIENTIFIC.**

**PROTECTIVE APPLIANCES OF FLOWERS AGAINST UNBIDDEN GUESTS.**

C. G. D. W.

Flowers which allure insects by dainty and inviting food, brightly colored petals, odor or nectar, are exposed to many injurious influences and attacks, and unless protective appliances are furnished, the perfect development of the blossom cannot be secured, no fruit will be forthcoming, and the species will eventually die out. These allurements to visits and protection against them make the division of animals into "welcome invited guests, whose visits are of advantage, and unwelcome uninvited guests, whose visits are of no advantage," indispensable.

The guests invited and uninvited are of countless number, but the latter display the greatest diversity, as the flowers of one plant are not attacked by one kind of animal only, but of various forms; "large and small; flying or creeping; winged or wingless; biting or sucking; with a soft and slimy skin or armed with a layer of chitin; some greedy after one part of the flower, some after another." For this reason it very often happens that two or three means of protection must be applied to preserve completely the flowers from animals of various form and size.

It may be interesting to note on what part of the plant the protective appliances occur. These I will give according to the order indicated by Dr. Kerner in his interesting work entitled, "Flowers and Their Unbidden Guests."

(1). **Protection from certain Animals by the Secretion in the Flowers of Distasteful Substances.**

Many animals, and especially mammals eat the leaves of plants, but though they might die from hunger would not touch the blossoms. They seem repelled by their beauty and odor rather than attracted.

It is quite common along our roadsides to see the leaves of the yarrow and mullin eaten off, while the flowers remain unharmed. Sporiferous plants, as ferns and mosses, whose reproductive organs are protected by leaves, are never attacked by animals. As a matter of course these plants which are avoided grow in greater number and spread more than those that are injured by animals.

This avoidance is explained by their distaste for certain chemical combinations in the blossom. The causes of aversion are sometimes resins, sometimes alkaloids, but principally etherial oils. These substances may, in leaves as well as flowers, be welcome food to some animals, and unwelcome to others. It is noticed that invariably flowers which exhale etherial oils are repulsive to mammals but attractive to insects.

(2). **Access to the Flowers impeded by Isolation in Water.**

Gardeners secure protection of plants from ants and woodlice which are exposed when grown in a garden and which would be protected in their wild state by simply placing the pot containing the plants upon other pots which stand in water, and thus insure them from molestation by creeping insects.

This method is somewhat an imitation of nature, as is shown in many plants by the base of the leaves being in such close contact about the stem as to form a basin which holds a considerable amount of water and is retained
for an astonishing length of time, and which the insect must cross in passing from the ground up to the flower. Thus the flowers of these plants generally possess all the attractions for flying insects in the shape of gaudy-colored petals, nectar or odor.

If ants be placed on the stem between these basins, they will run up and down, seeking some escape, but in the end they fall to the ground.

If such a small amount of water serves as a protection, how much more perfect this must be when the plant grows in water! Water plants possess only the one means of protection, but what if the water should run off? It is a remarkable fact that when this happens, other protection is supplied: an infinite number of horizontally projecting trichomes or hairs about 0.7 m.m. in length appear on the epidermis of the leaves and stem. They are most numerous on the axis of inflorescence, and their globular terminal cells secrete a viscid substance which is quite sticky to the touch. It is entirely impossible for insects to pass this without sticking fast. It is also remarkable that when the plant again becomes surrounded by water, the trichomes, with their viscidity, disappear, leaving the epidermis perfectly smooth. It is sufficient if the stem is nearly encircled at the base with fluid or mud.

(3). Access to Flowers impeded by Viscid Secretions.

Trichomes which secrete a viscid substance and occur on plants which grow on land when the water has dried up have already been spoken of, but they not only act as a defense to their nectary from creeping insects, but also from unwelcome flying ones. The viscid substance is always furnished from the epidermal structures and is discharged spontaneously or by diffusion, or, in many cases, is increased in amount by contact with the animal or rupturing of the cell wall caused by such contact. It is always tenacious and adheres very readily to other bodies, and is found on parts of the axis immediately beneath the flowers, and over which creeping insects must pass to reach them. If small insects be placed on the viscid axis, the tenacious substance sticks to them, and is drawn out into threads by the raising up of their legs. It is not long until the entire body becomes involved, and then the only alternative is death.

The viscid substances are found on the leaves, stipules, bracts, perianth, androecium, and exceptionally on the gynaeicum as well as on the stems. An example of bracts serving as a protective viscid screen is seen in the involucrum of Compositae.

Flying insects are kept back from the flowers by a layer of viscid substance on parts of the flower itself.

In various species of Lactuca, Asclepias and plants which contain milky juice it is quite evident that the juice serves as a protective appliance from the fact that when ants attempt to ascend the stem the terminal hooks of their feet cut the epidermis and the milky juice begins to flow, their bodies will soon be besmeared, and an attempt to get away is useless. Wax on the stem serves the same end.


While viscid substances serve to exclude such creeping insects as have a tolerably hard covering, those with soft covering, as snails, pass over the viscid places with comparative ease by covering the stickiness with their own slimy secretions, so that while ants may pass over prickles and thorns without harm, the softer animals avoid all contact with them.

It matters not on what part of the plant these structures are placed so that they make the path which creeping ani-
mals must take to the flower a dangerous one.

It is noticed that while spines start out horizontally or have their points directed upward, and thus protect the plant from browsing animals, prickles have their points directed downward and protect the plant from such animals as might wish to crawl up the stem.

The general rule may be stated here as in case of viscid secretions—the greatest number of prickles is to be found close to the flower. This is seen in our common thistle. The lower leaves are less prickly than the upper ones, and these again than the involucreum.

Prickles may be placed on parts of the flower in such a manner as to compel the entrance of the insect in a certain place. In such cases they are "path pointers" for invited guests as well as protective appliances against unbidden guests.

(5). Access to Flowers impeded by Hairy Formations.

Protective appliances hitherto considered are developed in most cases along the road which the insect must pass from the ground to reach the flower.

Viscid substances, collections of water or prickles would if placed in the flower exclude the insects whose visits are necessary to secure fertilization and the production of germinable seeds, hence it is to be expected that no impassible barriers will be placed in the flower except such as will keep out unbidden guests and direct bidden ones the right way.

"Soft hair-like trichomes are pre-eminently suited to serve this double function." Such trichomes when collected in large number, so as to form trellises or "weels," render all access impossible to some insects, while others thrust their long proboscis between the soft hairs, or by their greater strength push open the latticed door and enter without any difficulty.

Every such trichome when found inside a flower cannot be said to have no other function than protection of the flower, for in matter of fact they often do have some other function.

Hairs when arranged in the form of weels ("which are composed of straight flexible elastic trichomes, set in a circle around the inner surface of the tubular portion of the corolla and having all their free ends turned toward the center of the tube") serve to preserve the nectar and sometimes the pollen from insects of such small bodily dimensions that they would come into successive contact with the stigma and pollen.

The hair-like processes are sometimes found immediately over or on the nectary, sometimes on the androceum and sometimes on the gynaeceum.

(6). Access to Flowers impeded by Parts of the Plant, and especially Parts of the Flower, being bent, or dilated, or crowded together.

Where nectar is abundant one may most always find protection afforded by some peculiar position or formation of some parts of the flower. They are either curved, dilated, or crowded together; and so form grooves, tubes, recesses, chambers in such endless variety of forms as to render it almost impossible to give a general view of them. There are principally two kinds of structures, one which cover and enclose the nectar, the other in which the closure is incomplete, a narrow orifice being left through which animals can insert their instruments of suction.

As an example of the first kind might be cited the Autirrhinum, which has a "personate" corolla. In these plants the lower lip of the corolla is strongly curved, and has an arching protuberance, which is in immediate contact with the upper lip, so that the entrance to the flower is completely closed. An
insect to get into the flower must have the strength to push the lip. So it may be said that insects which are too small to come in contact with the pollen and stigma have not the strength to push open the parts and gain an entrance to the nectar-cavity.

These enclosures show many peculiar arrangements, as movable lids, outgrowths of the corollas in the form of humps, keels, and many times the filaments, which are dilated into laminar expansions, or the entire stamens, but perhaps the most curious devices are found in the Orchid family.

As to the second group of formations, which do not completely close the passage that leads to the nectary, there are constrictions or swellings of various parts. These may exclude all-nectar-hunting animals which are too small to fertilize the flower; or compel those which are large enough to conduct to allogamy to make their entrance in such a way that the result can be secured. The various appliances here act as "path-pointers" to the nectary just as do the hair-like trichomes.

In the Primula the lower part of the corolla is reduced to a tube which is so very narrow that the proboscis of the insect must be very small, not more than 0.2 to 0.3 m.m. in diameter, to be inserted at all.

Sometimes the part of the perianth which secretes the nectar is developed in long spurs, as in Aquilegia Canadensis.

A curious device is found in species of Scutellaria. On each of the two lateral petals is found a large swelling, with their convexities turned toward the center of the opening, which they almost close. To enter the flower the insect must push the bulges apart, and the pollen which has been deposited on the upper surface of them falls on the back of the insect and is carried to some other flower. The examples are many and interesting, but too numerous to mention.

It is evident from the fact that insects gnaw holes through the leafy investments of the nectary, and insert their proboscis, that they are attracted to its nectar by the smell. The proof of this fact is that even though the nectary can not be seen, they bite through the parts at the exact spot that affords the shortest road to it. This gnawing is usually done by insects whose visits would be prejudicial to the flower, and when access to the nectary cannot be had without some of the parts being pushed aside. In many cases this is avoided by the surrounding parts of the flower, as calyx or bracts being tough or stiff and hard. Another means to gain the same end is the crowding together of the foliar organs.

(7). Temporary Suspension of the Functions of those Parts of the Flower which attract Insects.

This includes plants that do not open until after sunset and are limited to a very short flowering period, generally only one month.

The family which presents the most examples of this kind is the Caryophilaceae. In all these plants each flower, unless disturbed, lasts three days and three nights. Late in the afternoon, when the bud opens, the anthers of the five stamens which are alternate with the petals show themselves at the mouth of the corolla, the locelli being as yet closed. In one or two hours after this the stiff filaments are found to have greatly elongated, and by sunset they project out of the aperture, the cells have opened and they are covered with pollen. They remain in this condition until the forenoon of the next day. The stamens then bend outward and the anthers fall off. In the afternoon the other five stamens, namely, those which are opposite to the petals, undergo the same process and the next morning drop off. As evening again approaches the S-shaped, twisted stigmas in the bottom of the flower move
forward. As the stamens lengthen, which is toward dusk, the corolla opens and the stamens bend, which is at the approach of day, the petals roll themselves up again and give the appearance of being already withered. In the evening they unroll and fall back on the calyx and the flower is open again. The color of the petals is white on the inside and ash-grey or some neutral color on the outside. Hence they have no attractions for insects that are buzzing around in the sunlight. They are also very fragrant in the evening, but not at all so in the daytime, thus attracting flying insects at night for the purpose of cross-fertilization. Wingless insects are kept away from the nectar by means of a viscid substance on the peduncles.

(8). Diversion of Visitors from the Flowers.

There are many leaves which secrete resinous or mucillaginous substances, and sometimes actually have their nectaries on the leaves. As creeping insects generally enter the flower only for the nectar, if it can be found before they reach the flower they are just as well satisfied. It is the same to them in one place as another. Many flowers have no other means of keeping such insects out, therefore it seems that they are means of protection on the leaves to divert insects from the flower.

NOTE.

Prof. Bain, who represents as conspicuously as any the industrial reform in education, discountenances the idea of special technical training in the arts before a broad foundation has been laid in what he calls "general science." His opinion should be weighed well by those who are so sanguine, nowadays, for the introduction of special technical training in our public schools.
benefit of Saturday nights, with an un-
interrupted series of sessions. 'Tis
claimed that for society to do its maxi-
mum good it must not be broken in up-
on; that the interest is lessened when-
ever such an interruption occurs.

It is further claimed that, this being
a scientific school where little litera-
ture is taught, the societies, in a great
measure, are the factors which supply
this deficiency; and being of this im-
portance that they should be held reg-
ularly every week; that many students
receive no literary training here except
through the societies, and hence the
importance of this change.

Some would further maintain that
since Saturday evenings are set apart
solely for the literary societies and so
indicated in the catalogues of the
college, that it is a regular exercise and
should not stand at the mercy of all
entertainments unless so desired by a
majority of the societies; that even the
lectures secured, conducted and paid
for by the societies should be, for same
reason, on other nights than Saturdays,
thereby giving the societies the benefit
of both.

But looking to the argument in favor
of having them as usual, on Saturday
evenings, the first would probably be
that being the programmes of the so-
cieties combined they should be on Sat-
urday nights. Of course this merely
refers to such entertainments as are the
results of societies' efforts.

It might also be said, if Friday even-
ings were occupied thus and a goodly
portion of Saturdays spent in preparing
for societies, that Mondays' lessons
must feel the effects in an imperfect
preparation, or if the lessons are not
sighted on these days, the student
would be compelled to study on Sundays
and would not, during such times, se-
cure that rest of body and mind essen-
tial to his successful weeks' work.

A still further reason might be given.
On alternate Friday evenings the Engi-
neering, Agricultural and Veterinary so-
cieties hold their regular meetings, and
were the lectures, concerts, etc., held on
these nights, there would be a possibil-
ity of their conflicting.

 Probably one might contend that
even if there were nothing to break the
continuity of society sessions, it would
be well to suspend one session, at least,
during the term to rest or visit the other
societies, which could be done by all
the societies not adjourning the same
night.

Of course the opposition would ob-
ject to this on the score of the precious-
ness of the time lost, and that unless
the societies were very small, one would
not come on the programme so often
that it would be necessary to adjourn
to recreate. He would also say to the
objection raised to overwork by having
entertainments on Saturday nights, that
the members of the afore-mentioned
Friday evening societies find no objec-
tion from that quarter, and therefore to
have a lecture, for example, where no
previous preparation is needed, this
would be a poor objection.

In this article we have endeavored to
set forth some of the most prominent
arguments which we have been able to
gather from discussions in which we was
no participant. They are only a few,
and simply intended to set those to
thinking who are interested in the
matter.

Looking over the old files of The
Aurora, we make the discovery that no
one has ever written an editorial on the
social question in its relations to the
Iowa Agricultural College, its students
and instructors. All that has ever been
written are a few brief notices to par-
ticular branches, and those very in-
direct.

I don't know whether it has been
due to a belief that the question is of
small importance, or whether it is a
question delicate and difficult to handle.
Whichever is the correct supposition
makes but little difference, for we know that if the disposition of the subject is not agreeable, why—well, we have but another issue anyhow, and that after the term closes, so we continue.

It is difficult to determine, unerringly, the best methods of securing the proper direction of this question. The situation, here in the country, confines us, one might almost say, to a world of our own, and practically so far as society goes.

It is not maintained that unlimited attention should be given in this direction, or that time should be taken from study hours to promote its interests, but that some attention, at least, should be given the matter.

When we reflect that there are here assembled three to four hundred persons, comprising, we think it can be proudly and honestly said, the very best material Iowa can afford, and for the sole purpose of attaining facts, it seems as though some radical change is needed in this direction.

But this is general. Let us deal with the question by particularizing. Let us take for example the class of '86. Once in its college course—in four years—has it, as a class, had permission and occasion to have a class sociable. Even then circumstances made it impossible for all the class to participate. This fact is no great exception to the past, and bids fair to be no exception in the future unless something is done in this direction.

So much for class sociabilities. But how is it in general. Probably this year does not vary either way very far from an average year in number of social attempts. We think that one at the beginning of each term, with probably one intervening one, will enumerate the list. And the almost total failure of these attempts—surely they would have been practical failures had it not been for the energetic labor of one or two persons who had social experience and who knew how to conduct and keep alive a social gathering, we say had it not been for this one factor, the failure of those undertakings would have shown the great force of these arguments.

The farmer's boy, it may be, comes here, does well, stands high in his classes, acquires a mathematical knowledge, may master the sciences, graduates with honors, goes home, and is as untutored in his bearing and manners as the day he left the farm for the college.

It may be said that if one has good qualities they are sure to be recognized sooner or later. We take it that it will inevitably be later unless he has some power to show and prove to the world that he has ability. But as a self-pleasure one can not afford to be ignorant of all laws of refined society. We must acquire this branch of our education along with the other parts. One does not care to be a scientific anomaly while knowing nothing about literature; much less does one want to be an average student, with no knowledge or experience in the ways of the social worlds.

But whose fault are we suffering from? How better the case? No one is in fault in particular, everyone in general. First, you of the future, for with you it must rest, must strive to evade the old conservative and place instead real, unaffected social principles. Nearly every other college in Iowa arrange to have social occasions. There the awkwardness, backwardness and unprogressiveness of society disappears.

There is no reason why we should not bring about a reform here. Here we have the material. Many will not have after leaving here. Here we have the natural advantages. In many places this is lacking. Every professor and influential person interested in the college will, no doubt, aid in bringing about a more free, pleasant, healthful, social spirit.
EXCHANGE NOTES.

The Doane Owl, Crete, Neb., is the first September number which comes to our table. Doane Owl has many praiseworthy features. We notice especially that the locals are interesting, even to one at a distance. The literary department contains a number of peculiar selections characteristic to itself.

The News Letter tells us that the Iowa College has commenced another school year. The News Letter gives the master oration of June 23 of that place. It has five columns of locals, with an editorial quite well arranged.

The Fayette Collegian greets us with the following appreciated remarks:

"The Aurora could be much improved by separating the editorials from the locals, and by devoting more time and space to short editorials."

In return, and in the same spirit, Mr. Collegian, you could appear to better advantage by filling out your editorial staff. It would then contrast with the remainder of your articles. If you believe in "devoting more space to short editorials," why not begin at home and produce more than three columns? If you believe in "devoting more time," why not set the example and let it be manifested in your editorials? If you would separate locals from editorials, why not place all you have in your editorial columns in the local columns? or, better, change its name? Make that editorial (?) on Attention "short"(er) by simply referring to Vol. 1, page 271, of Sir William Hamilton's lectures on metaphysics and logic. In short, dear Collegian, it is hoped that your hope "to edit a better paper" may be abundantly realized.

The Ariel, of the University of Minnesota, comes promptly considering that it was printed the 1st inst. It contains a good article on "Ireland and Legislation," besides possessing a neat arrangement of all its parts.

A breeze from Dakota comes in the form of The Larimore Pioneer.

NEWS FROM OTHER COLLEGES.

Nearly all the colleges are now beginning to open up for a new school year. The news, however, is not as yet forthcoming, as they have not yet settled down to business and their college journals. This issue must necessarily be short in point of college news, but by another issue we will be able to tell you all about our neighbors and their resurrection.

The medical school at the State University opened up the 29th ult. with 130 students, making the largest class in the history of the school. Reports being correct, all the other departments are increasing also.

Drake University foot-ball players were matched in a game with the town boys recently, contesting for the mastery, and to show the results of their gymnastic training.

The seniors of the College of the City of New York were not marked last year in their recitations. This is in accordance with a resolution adopted by the trustees, and if the experiment gives good results it may become permanent.

About a thousand persons signed a petition at Harvard College this year abolishing compulsory prayers for the undergraduates.

Orations are abolished at the commencement of the college department of the University of Pennsylvania. This was brought about by a special petition and liberally endorsed.
A few colleges, among which are Hillsdale and Alleghany, have deserted the old conservatism and now hold their weekly holidays on Mondays instead of Saturdays.

The Topeka library contains 7,000 volumes.

The Southern Kansas Academy at Eureka was dedicated on Sept. 4th, and was opened for students. Addresses were given. Prof. A. F. Burnell is in charge.

There were 190 new students presented themselves for examination at the Kansas State Agricultural college the first day. There are, in all, 370 students enrolled for the present school year. Among many new features of our sister college is that of having an entertainment every Friday afternoon in their chapel, which is always crowded. Whether or not this works to the studious interest of the college, it surely keeps society awake and active.

Yes, and got along much better, might be added.

A hickory nut picnic can get along all right without hickory nuts, but not without sand.

The Junior nine was defeated by a nine picked from the two lower classes, 13 to 12.

The highest record made yet at target practice is twenty out of a possible twenty-five, made by a couple of captains.

Nuts seem to be exceedingly plentiful this year, judging, at least, from the sounds made by cracking them, which can be heard at most any time during the day.

Dame Rumor has been trying to make us believe that Sabbath afternoon would be given us for recreation hour, but so far she is sadly mistaken. Perhaps she does not recognize what she has to deal with.

Company G. has been drilling regularly all fall, and is entitled to the badge of the best drilled company.

Some one had better "donate" a comb to the parlor, or we will give the drum-major away.

The seniors have come to the conclusion that what a person knows about a study and the marks he gets, have no relation existing between them whatever.

The ladies of the faculty and others gave one of the most entertaining concerts given this year.

The pictures of the Seniors are exceptionally good as far as we have seen. None, however, have appeared yet excepting those taken by Edinger.

The circus in north tower would not disturb the ladies in north section if
the attendance were diminished by doubling the price of admittance.

The Deltas tested the material in Spencer's photographing apparatus.

Some of the boys seem to be in favor of organizing a Pickwick club, with Jim Davidson as president.

The faculty think best not to consider the matter of allowing lectures to be held on Friday nights. It seems at first that an instructive lecture would be far preferable on Friday eve to the way in which it is usually spent by the majority of the students.

The College nine played the Eagle Grove nine on the Ames diamond, and at the close of the ninth inning they stood 9 to 9, and still a tie at the close of the tenth; but the eleventh inning resulted in favor of Eagle Grove. The boys should have stopped at the close of the game. The defeat was no disgrace, but showed that our nine has good players, or it could not have tied a nine that has beaten, and badly, every other nine of any importance in this part of the state.

What is the matter with the bashful Juniors at the cottage? Haven't they the sublime cheek to carry out their little scheme?

As soon as the new engine is put in operation, the cottages will be lighted by electricity.

The question which will agitate the faculty the remainder of the term is, "What will we do with our Seniors?" If the truth were known, half of them should be "fired" for what they have done and the other half for what they have not.

The Philos, having enough girls in their own society, concluded to have a society picnic, which they accordingly did, going to Riverside Park, on the Des Moines river, west of Boone. It is almost needless to add that it was one of the most enjoyable occasions of our school life.

The band serenaded many of the prominent citizens of Ames and were appreciated everywhere. They did exceedingly well considering the fact that they lost their drum-major early in the evening.

Several of the students went to Marshalltown to see Jumbo's skeleton.

Half a dozen of the agricultural students, accompanied by Prof. Knapp, went to Chicago to attend the exposition and other places of interest, including besides Chicago, Elgin and its dairy farms.

"Forward the Spear Brigade Charge on the rat!" Cap said. Was there a girl dismayed? No! Not even one essayed To leave on the sly. Flashed all their lances bright, Blanched all their faces white, But with their strength and might, At the poor rodent, right Valiantly fly.

Girls to the right of him, Girls to the left of him, Girls right in front of him Made the rat quiver. They're quickly around him, Madly they pound him, So fiercely they wound him, It made Captain shiver.

O, the wild charge they made! Ne'er will their glory fade! But of each noble maid Let the world read. Honor the Spear Brigade! Honor the charge they made! Ne'er let the memory fade Of their brave deed.
Misses Norma Hainer and Hilda Becker expect to return and graduate with class '87.

Miss Clara West spent Sabbath with the Ames students here.

Mr. and Miss Waitly, of Dunlap, visited George Greene and others from Harrison county. They were on their way to attend school in Des Moines.

Frank Andrews has left school to take a course in architecture at Cornell University.

Herbert Preston enjoyed a visit from his mother and cousin.

F. Y. Locke stopped to visit his old I. A. C. friends. Frank is becoming quite a business man.

Will Rickard was called away from school by the sickness of his sister.

S. D. Clough spent a couple of weeks at home.

Prof. Hainer's mother spent a week visiting him and Mrs. Hainer.

Misses Lizzie McCusky and Lou Johnson left for home, where they will teach the olive branches of western Iowa the mysteries of the multiplication table and the sublime truths in Webster's spelling book.

Mrs. Graves' nieces, Misses Sylph Graves and Zylph Luther, paid her a very enjoyable visit.


Miss Laura Moulton expects to teach near Gilbert the coming winter.

Miss May Broadhead obtained leave of absence from Sept. 24 to 31. Not being able to decide when Sept. 31 came this year, she did not return until Oct. 3. She had a splendid time at home, though, eating and dreaming over wedding cake. She stopped over Sabbath with Marion Watrous in Des Moines.

W. E. Gamble, M. D., has left school to practice medicine at Deep River.

Bert Felt's father came up from Blairstown to stay over Saturday and Sabbath with him.

John James has accepted a position in a drug house in Kansas, with a salary of $800 to begin with, and a promise of an advance, everything being suitable.

Misses Lizzie McCusky and Lou Johnson left for home, where they will teach the olive branches of western Iowa the mysteries of the multiplication table and the sublime truths in Webster's spelling book.

Mrs. Graves' nieces, Misses Sylph Graves and Zylph Luther, paid her a very enjoyable visit.

Capt. Lincoln took the Diamond division of the Knights of Pythias to Muscatine, where they took third prize. They, in token of their appreciation of his services, presented him with an elegant K. P. badge.

Billy Myers' father spent a short time visiting him and the I. A. C.

Miss Julia Wentch Sundayed with her cousin near Ames.
Miss Blood and Mrs. Riley spent a couple of days in Des Moines.

Miss Maggie Cameron has left school to teach at Sibley.

Miss Florence Weatherby visited with her sister in Des Moines.

Capt. Lincoln attended a contest between the companies of the Fourth regiment, Second brigade, I. N. G. Billy Hunter went with him, acting as adjutant.

Miss Mabel Lucas spent Sabbath at her home in Des Moines.

Miss Marion Watrous will return next year and graduate with class '89.

Miss Anna McConnon attended the Philo picnic.

Prof. Budd attended the forestry convention held in Colorado.

Erric Erricson left school to take charge of the Story City schools. He comes back Saturdays to keep up his laboratory work.

Mrs. Philips visited her son, who is a Freshman here.

President Chamberlain delivered a very interesting and instructive address before the students on "Honesty is the Best Policy."

Lou Tilden has been laid up with a very severely sprained ankle, which caused him to miss his recitations for a few days.

Walter McHenry and Tom Burke are on the stump this fall.

Mabel is charmed with her new waste basket, presented to her by the picnickers that were hickory-nutting.

Married—At the bride’s parents, Prof. and Mrs. Wynn, at the Iowa Agricultural College, on Wednesday afternoon, Oct. 6th, Mr. S. A. Nourse of Ames and Miss Mary H. Wynn, Prof. Wynn officiating.

The above event is one which was looked forward to with great pleasure by the many friends of the contracting parties.

Mr. Nourse is a leading merchant of Ames. He has been in business here since 1882, and some years previously was engaged in mercantile pursuits in this city. As an enterprising, upright business man and citizen he stands among the foremost of our people, and in all respects is a warm-hearted, generous, whole-souled gentleman.

Miss Wynn has lived here from childhood. She has grown up among our people, and her pleasant, happy face is known by all our citizens. She is a lady of rare accomplishments. Added to a finished education she has superior musical ability; but above and beyond these she possesses, in a marked degree, all the qualifications of an intelligent and thorough housekeeper.

The wedding was a very quiet one. Besides the family there were present President W. I. Chamberlain, Dr. and Mrs. Welch, and the Misses Mary Johnston, Clara West, Jessie Gaston, Lulu Wright and Mabel Lucas.

---

ALUMNI.

'85. C. B. Lockwood, with the Chicago Forge and Bolt Co., contemplates taking the C. E. degree at the I. A. C.

'85. E. Gray also expects to finish his post graduate course next year.

'84. The M. C. & Ft. D. R'y Co. has recognized merit by making E. J. Nichols resident engineer of the division between Fort Dodge and Belmond, at a salary of $1,200 and expenses.

'81. Tom Burke has received the nomination of county attorney in his county—Keokuk.
'84. Chatburn and Armstrong visited their friends here a couple of days. Chat. is principal of the Plattsmouth, Neb., high schools, and Army is also a champion of the ferrule in Marshall county.

'83. Miss Jennie Cristman is teaching in the intermediate department of the Ames schools, and Miss Anna McConnell is still assistant principal.

'77. Mr. G. I. Miller, superintendent of the Boone schools, visited the college, and brought with him his classes in geology and zoology.

'84. B. T. Hainer spent a couple of days visiting his brother and old friends here. Bayard was on his way to Ann Arbor, where he is now taking a course in law.

'78. Prof. Mount was called away from his classes by the sickness of his wife.

'84. Married—Sunday, Sept. 26, at the house of the bride's parents, at Randall station, Mr. W. H. Wier, of Story county, to Miss Mary Christianson of Hamilton county, Prof. W. H. Wynn officiating.

Another College Alumnus gone into the blissful paradise of matrimony, with the congratulations of many warm-hearted friends going with him. Mr. Wier was one of the prominent and influential members of the class of '84 at college, and was known in our community here as a universal favorite; and we also join in sending in our congratulations. Mr. Wier is a son of Capt. Wier, one of the oldest, most intelligent and most respected citizen of our county, and has taken to himself a beautiful and accomplished bride from one of the most prominent and successful business families of Hamilton county; and they too have commended themselves for the noble work they have done in the school room, as teacher and pupil, and consequently as co-laborers in the same field. The wedding was a large one, consisting of a wide circle of the more immediate friends of the bride and groom, with sumptuous feasting and good cheer, and many valuable presents flowed in as tokens of affectionate interest in the future of this happy pair. As illustrating the influence of the college of which Mr. Wier is an honored graduate, it must be noted that he and his accomplished bride turn all their cultured energy in the direction of the ruling line of industry of our state, in which we wish them a lasting and uninterrupted success.—Intelligencer.

'85. D. B. Collier spent several days at his alma mater. Durb looked just as honest and had as strong a grip as of old.

GENERAL DIRECTORY.

CHRISTIAN ASSOCIATION.

MEETINGS.

Sunday School every Sunday at 1 p.m.
Prayer Meetings: Sunday evenings at 7 p.m., in the Chapel; Thursday evenings at 7 p.m., in Freshman Recitation Room.
A cordial invitation is extended to all.

N. Spencer, President.
Grace Frater, Secretary.

ALUMNI ASSOCIATION.

R. F. Jordan, Pres.
E. W. Stanton, Secretary.

SCIENCE CLUB.

W. M. Hayas, Pres.
V. C. Gambell, Secretary.

COLLEGE BAND.

F. A. Bardwell, Pres.
B. J. Shelden, Sec'y.
SOCIETY DIRECTORY.

The four literary societies meet in their respective halls every Saturday evening at 7:30 p.m. All are invited to attend.

**CLIO LITERARY SOCIETY.**
Lizzie Langfitt, President.
Gertrude McClure, Cor. Sec’y.

**BACHELOR DEBATING SOCIETY.**
J. W. Bradford, President.
F. E. Stinson, Cor. Sec’y.

**CRESCENT SOCIETY**
Dr. W. E. Gamble, President.
W. H. Wright, Cor. Sec’y.

**PHILOMATHEAN LITERARY SOCIETY.**
G. W. Greene, President.
Maggie Cameron, Cor. Sec’y.

**SOCIETY OF ENGINEERS.**
This society meets in Engineering Hall at 7 p.m. every second and fourth Fridays of each month. Those interested in engineering cordially invited.
James W. Bradford, President.
H. D. Graves, Sec’y.

**AGRICULTURAL AND HORTICULTURAL ASSOCIATION.**
Meets in North Hall at 7 p.m. every alternate Friday.
G. W. Greene, President.
J. Craig, Sec’y.

VETERINARY MEDICAL SOCIETY.
Has its regular meetings in Sanitary Hall at 7 p.m. every second and fourth Fridays of each month. All interested in this line invited.
M. Stalker, President.
J. Tillie, Sec’y.

WIGGINS,
THE PHOTOGRAPHER
Headquarters for
Fine Artistic Work.

No. 44 Second Ave.,
(Near P. O.) Cedar Rapids, Ia.

MISS D. C. DIX,
Dealer in
Millinery and Fancy Goods,

Ladies’ Furnishing Goods & Notions.

— Also —
Embroidery Silks, Crewels, Zephyrs, Felting and Canvas.

AMES, IOWA.