

# THE COLBY ECHO.

NEW SERIES:—VOL. III, No. 10.

WATERVILLE, ME., FRIDAY, DEC. 15, 1899.

PRICE FIVE CENTS.

## THE CALENDAR.

- Dec. 15. Term examinations begin and continue until Tuesday Dec. 19, inclusive.
- Dec. 20. Winter vacation begins. College exercises will be resumed Thursday, Jan. 4, 1900, with chapel at 9.00 A. M.
- Dec. 26. Meeting of the Central Maine Theological Circle, Room C. Chemical Hall.
- Jan. 4. Senior articles due.

## STANDING APPOINTMENTS.

- Second Monday. Meeting of Prudential Committee at 8 A. M.
- Last Monday. Meeting of Conference Board of Men's Division 7 P. M.
- Last Tuesday. Meeting of Conference Board of Women's Division 7 P. M.
- Tuesdays. Meetings of Christian Associations 6.45 P. M.
- Wednesdays. Meeting of Faculty 7.30 P. M.

## NOTICE.

Please Watch This Column and Do Your Duty.

Subscribers to Expenses of Athletic Teams.

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Chas. H. Pepper.  
A. F. Drummond.  
W. D. Spaulding.  
Dr. S. B. Webb.  
Dr. G. O. Smith.

## A ROUGH EXPERIENCE.

A party consisting of Doughty, Towne, and Furbush '00, and Sturtevant returned Monday, from a week's hunting trip in the vicinity of Wilson's lake. They brought back three deer. The party will never forget the experience which one of their number, Mr. Towne, underwent.

On Monday, Dec. 4, after hunting all day in the vicinity of Rum mountain, in a damp, blinding snow storm, he became separated from the rest of the party while following a deer.

Knowing that it was useless to strike off through the woods in the darkness, he selected two large trees about 20 feet apart and began walking back and forth between them. All night long he continued his solitary beat. His clothes, wet during the day, soon became frozen and stiff. Without food since morning it was probably only the strong physical condition in which the football season left him that enabled him to keep moving throughout the night.

In the morning he struck out east and came to a tote road, following this he came to a camp where he obtained food and direction to Elliotville, where he took the train and arrived in camp late Tuesday night. The rest of the party passed an anxious time Monday night, and spent Tuesday on Mr. Towne's trail, being much relieved when they heard of his safe arrival that morning at the camp.

The following men expect to stay at "The Bricks" during the winter vacation: Cushman 1900, Blackburn, Marsh, Andrews, 1901, Atchley, Richardson, Jones, Haggerty, Barber, Koch, 1902, Fogg and Cox, 1903.

'99. W. Wirt Brown is temporarily engaged as a clerk at the Peoples' bank.

## BACTERIA;

### Their Relation to the Diseases and Industries of Man.

[THE ECHO presents this week an abstract from the first of a series of articles to be read before the class in Zoology during the year. The original article by Mr. Gilbert '00 was a paper of nearly three quarters of an hour's length, so the following abstract can present little more than an outline of the subject. Ed.]

From the moment when man first made his appearance in the world, he has put forth every effort to subjugate the materials and forces of Nature and compel them to contribute to his comfort. It was many centuries before he became aware that there were certain micro-organisms which contributed largely to his well being and also caused him much trouble. These organisms are bacteria, more generally known as microbes or germs. There are several hundred species of them, nearly all of which are helpful to man, only a score or more being injurious to him. They were discovered by Leuwenhoeck, a Dutch microscopist, in the latter part of the seventeenth century. Very little was learned about them, however, because of the inadequacy of the microscopes of the time. About the middle of the present century bacteria were brought to the front by Louis Pasteur, who is the father of the science of bacteriology and who showed the relation of bacteria to many of the diseases and industries of man. It was Pasteur who first combated successfully the chemical theories of fermentation and putrefaction and showed them to be due to bacterial action.

Bacteria are fungi and their study is a branch of Botany. They are plants without the chlorophyll or green coloring matter. They have three general powers, spheres, rods and spirals; and these group themselves in different ways and receive names corresponding to the manner of grouping. They multiply in three ways, by fission, budding and the forming of spores. The yeasts differ from them in that they reproduce by budding only. Bacteria increase very rapidly, a single one being able to produce thousands of offspring in a single day. They reproduce usually by fission, but when food, heat and moisture, which are necessary for their growth are absent, they resort to spore formation. There are many ways of classifying them according to their characteristics, all of which must be omitted here for want of space; but the two great divisions, Pathogenic and non-Pathogenic must be mentioned. The first are those causing disease and the second those not causing it.

Bacteria are grown artificially in beef broth, milk, and on the potato,

both cooked and raw. These, and many other substances are called culture media and the growing bacteria, cultures. We find bacteria almost everywhere, in the air, in milk, on our bodies, in the intestines and the secretions of the body. The glands of the body never contain them when in a normal condition. Those in the intestines, ordinarily harmless, are thought by some, under certain conditions, especially those of army life, to develop typhoid fever.

Diseases of bacterial origin are caused by a substance, known as a toxin, which is a product of bacterial growth. Its injurious effect is often prevented by the use of an anti-toxin, as in diphtheria for example.

Bacteriology has made many hitherto impossible surgical operations possible. This science has shown us that gangrene, surgical fever, and the formation of pus in wounds, are all due to bacteria and that perfect cleanliness in the hands, sponges and instruments of the surgeon can prevent all this. This is the basis of aseptic surgery.

Were it not for bacteria and their action this earth of ours would have long since become unfit for us to live upon. Bacteria are continually breaking down organic animal and vegetable matter into simpler inorganic matter and making it fit for the plant to consume. The same food is used over and over again, first by the plant and then by the animal and so on, and so long as the sun furnishes energy to keep the circulation continuous, this will go on. Putrefaction and fermentation are due to bacterial action and so this process in Nature's food cycle is carried on.

Many of the industries of man are aided directly by bacteria and in some no other means of carrying on the industry has been discovered. The preparation of linen, hemp, jute and coconut fibre are all dependent upon this agency. In all of these we have valuable and worthless plant fibres held closely together and their separation is brought about by a fermentation process due to bacteria. In the tanning of leather, the hair and outer skin are softened so that they can be removed by a similar fermentation. The sponge of commerce is the fibrous skeleton of a marine animal, the softer parts of which are gotten rid of by allowing the sponges to stand in the warm sun and bacteria enter and grow and then these softer parts are easily removed.

Citric, acetic, butyric and lactic acids are in many instances prepared by aid of these organisms which we are considering. Citric acid is made from the juice of the lemon by a process of fermentation. Acetic acid, the acid of vinegar, is due to bacteria as may easily be shown by allowing the "mother vinegar" to come in con-

tact with a string suspended in the air and then letting alcohol trickle down the string. Alcohol will be the result, the "mother" being a mass of acid producing bacteria. Butyric and lactic acid are the acids of rancid butter and sour milk respectively and are both due to bacteria.

The curing of the leaves of the indigo plant is one requiring a bacterial fermentation for its success; for if sterilized leaves be placed in sterilized water, no fermentation takes place and no dye is formed. The curing of opium and tobacco are both dependent upon the same agent for their success; the latter wholly so. The popular flavors of tobacco are produced by inoculating the leaf with the proper kind of bacteria. Ergot is also prepared with the aid of these minute friends of ours.

The farmer is very much indebted to bacteria for the service which they render him in the manufacture of butter and cheese. The ripening of the cream and the delicate flavor and aroma of both cheese and butter are of bacterial origin. Then, too, these small plants may cause the milk to turn sour, red, blue or yellow or to have long, fibrous masses in it, but perfect cleanliness can eliminate all of these. In the management of his silo the farmer has a great bacteriological problem, since here, he is trying to check their growth so that he may preserve food in a fresh state for his cattle.

The reason why pease and beans are so beneficial to a soil is, that they cause the distribution of nitrogen through it. This is done by means of a particular species of bacteria who find their natural habitat on the roots of these plants. These bacteria are cultivated and sold to the farmers to enrich their soil, by some dealers in Germany. In this country the growing of bacteria for the ripening of cream has been patented by some enterprising manufacturers.

Many of the diseases of plants are caused by bacteria; the vine alone having over a hundred. Bacteria may enter a tree through a cut or broken branch and then bring about the destruction of its tissues and finally its death exactly as in an animal. The brewers and vintners have to guard against the entrance of certain kinds to the fermenting vats, because they cause disastrous fermentations to take place.

When we see how largely man's industries are dependent upon bacteria and of what great value they are to us in so many ways, we can hardly blame the old doctor, who, in speaking of bacteria, exclaimed, "The world has gone clean bug-crazy." And still we believe that as yet only a very few of these useful friends of ours have been discovered and there are many more only waiting man's bidding to become his valuable subjects.





## THE ANNUAL DEBATE.

### Colby Challenges Bates and Her Committee Submits the Question of Trusts.

Owing to the press of other college work on the part of those most interested, the debating interests of Colby had been suffered to lie neglected this term until we were roused from our lethargy by a communication from Bates College asking whether we intended to challenge that institution to a debate this year. Upon receipt of this communication President Hudson immediately called a meeting of the Colby Debating Club to take some action in the matter. However, it did not seem feasible to decide the question on so short notice and the meeting adjourned without taking any action, not to be called again, until after the Thanksgiving recess.

At a meeting of the club Friday morning it was voted to challenge Bates, and a joint committee, consisting of President Butler, Dr. Black and Mr. Stevens from the Faculty, and Messrs. Hudson, '00, Lawrence, '00, and Libby, '02, from the students was chosen to have the matter in charge. It was also voted to elect the team to represent Colby against Bates by some method of competition.

On Saturday afternoon the committee, together with the candidates for the debating team, held a protracted meeting, at which it was found impossible to adopt any practical method of competition. The matter was referred back to the students and a mass meeting held in chapel, Monday evening, at which after a long discussion it was decided that the team which represented Colby last year, consisting of Messrs. Hudson, Lawrence and Libby, should uphold one side of the question in a joint debate, while a team composed of three other men should support the other,—these last three to be selected by a competitive exhibition. At the joint debate referred to, the three men doing the best individual work are to be chosen to represent Colby against Bates. The date assigned for the debate is Jan. 12.

On Tuesday the committee in charge held a meeting and decided upon a question to be submitted to Bates, which was immediately forwarded to that college. It reads as follows:

"Resolved, That the Present Tendency Towards Combination of Productive Agencies (in the form known as trusts) is Dangerous to the Consumer, the Wage earner and the Investor of Capital; Subversive to the Public Welfare; and should be Restrained by Legislation.

Upon receipt of this question Bates at once wrote back objecting to the wording and the committee was again convened, and a new form of the question adopted and submitted to Bates. This is as follows:

"Resolved that the Present Tendency toward the Combination of Productive Agencies into Organizations known as Trusts, is Subversive of the Public Welfare, and that such Organizations should be Prevented by Law."

Whether Bates will accept this form of the question, THE ECHO, up to the time of going to press, has no means of knowing.

### ALUMNAE RECEIVE.

In striking evidence of the depth of college feeling at Colby was the reception given Friday evening, Dec. 9, at the home of Miss Purinton, Pleasant street, by the alumnae of the college residing in Waterville to the members of the Women's Division now in college. Nearly twenty of the graduates were present and a very large proportion of the undergraduates.

The reception committee consisted of Miss Purinton, Mrs. Pierce, Miss Lowe, Mrs. Illsley and Miss Addie True. After some time spent in a social way, a selection was given by the Banjo, Mandolin and Guitar Club. Miss True then welcomed the guests and in a most charming manner spoke of the warm feelings that are entertained by all the former members for the present members of the college, and of the high ideals that have ever been before all Colby women. After a song by Miss Farr, '96, and a recitation by Miss Pike, 1900, the phonograph contributed its share to the evening's enjoyment. Choice cut flowers were conspicuous both in parlors and in the dining room, where refreshments of cake and punch were served by Miss Vigue and Miss Frances Morrill.

As the guests departed it was with a stronger feeling of gladness than ever that they were Colby girls, and with the sentiment upon the dainty souvenirs of the evening finding a ready response in all hearts—

"Here's to our Alma Mater,  
Long may her annals be!  
Here's to the hearts that love her,  
So here's to you and me."

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## OF INTEREST.

### Examinations!

Miss Koch spent Sunday, Dec. 10, in Hartland.

Farwell, formerly of 1902, was visiting friends at "The Bricks" on Thursday.

Miss Ethel Jenks of Houlton has been visiting her sister, Miss Mildred Jenks, '03, at the Dunn House.

Prof. Osborne attended the district meeting of the I. O. G. T. which was held at Hallowell, Wednesday.

Miss Mary Richardson, of Castine, spent Friday, Dec. 8, with her sister, Miss Mabel Richardson, at Ladies' Hall.

Skating was fine Saturday on the river back of the college buildings, and at one time in the afternoon nearly 100 people were enjoying the sport.

The first in the series of college dances will be held this evening at Thayer's hall. Hall's orchestra will furnish the music. Miss Mathews will act as patroness.

There will be a meeting of the executive committee of the Colby Athletic association Saturday afternoon at 4 o'clock in Coburn hall. It is desired that all members be present as the annual election of officers will be held then.

Required work in the gymnasium closed Monday night. The work stopped so that the men may have the hour for preparation for examinations which begin next Friday and to give Dr. Frew more time for the physical examinations of the freshmen.

An effort is being made to bring together the members of the college whose homes are in the Bay State. Some of the best people in college came from Massachusetts, and a social organization of the kind would doubtless prove of much enjoyment to its members.

Rev. Mr. Stetson of the Baptist church went to Mt. Vernon by order of the secretary of the Maine Baptist association and was absent from his accustomed place in the pulpit yesterday. His place was ably filled by Mr. Bakeman, a student from Colby College.—*No. Vassalboro News*.

The hoods have been placed over the entrance to North and South College. These hoods have an interesting history. They were first put on three years ago. They were a good thing in the winter to keep ice off the steps. In the spring they kept water off the freshmen, and so one night the sophomores took them off and kept them from Sam until summer was nearly gone. Since then the college authorities have taken them off early, and stored them in a safe place for another year.

Rev. W. W. Bustard, Brown University '95, was chosen pastor of the Dudley street Baptist church, Boston, Wednesday evening. Rev. Mr. Bustard will be remembered in this city as the clever baseball player who coached the Colby nine in the spring of '07, and as the conductor of athletics at Good Will Farm during several assemblies held there. He was well known here also for the zeal which he showed for religious work. He will succeed the late Rev. A. S. Gumbert.—*Waterville Mail*.

Prof. Black called a meeting of the senior and junior classes Monday morning to consider a change in the electives of his department, desired by some of the classes. Dr. Black has generally given for the spring term a course on the French Revolution, followed in the spring by a course on the Napoleonic era. The class decided to have the French Revolution given in the spring term. Dr. Black will substitute for it in the winter term a course in Colonial and Constitutional History of America, followed in the spring by a course on American government.

## The Bill-board.

The Society for the Promulgation of Poetry repeats the offer of last week. All contributions will be published in this column. The following poems are the first to be submitted for competition:

### Warner's Moon.

Crossing the railroad track  
And looking back,  
What is it far or nigh  
That I descry?

The full moon just arising  
On the rim of night?  
No, but how surprising,  
It is Warner's light.

How much that is like Warner  
Not to set his candle in a corner,  
Under a bushel or a bed,  
But like a worthy brother,  
To place it where upon another  
Its radiance may be shed.

Keep it burning,  
Beacon light,  
For these returning,  
Late at night.

\* \*

### Warner's Moon.

I can see her rise in splendor, beauteous  
beyond compare,  
Flooding all the Eastern sky with mel-  
low light,  
With a glow so soft and tender, she is  
lovely, she is fair,  
Chaste Diana, queenly goddess of the  
night.

There's another, —Aphrodite, and she  
weaves a potent spell,  
While the naughty Cupid speeds his  
poisoned dart;  
But the shaft is far more mighty, and  
the wound is far more fell,  
When Diana guides the arrow to the  
heart.

But enough of orbs celestial. Now, kind  
sirs, at your behest shall  
I not let my fancy fold its azure wings;  
Bid adieu to fair Diana, and in expedi-  
tious manner  
Bear me back to more familiar, earthly  
things?

Now of moons that are terrestrial, Warn-  
er's moon is sure the best, shall  
I inform you of this weird and wondrous  
light?  
No, you think you've had enough sirs,  
call my verses only stuff! sirs?  
Why! you don't know poetry when you  
see it sirs, good-night!

\* \*

### Polo Teams.

At the beginning of next term the C. G. team will be ready to meet all comers, the Y. M. C. A. and K. K. K. teams especially. All communications should be addressed to Carl Witherell, Captain and manager.

\* \*

When we hear our editor winging his way to oratorical heights by the power of his mighty eloquence we are reminded of a story told of the late Bill Nye. It is as follows: Nye and James Whitcomb Riley were making a lecture tour through some of the Southern states and one rainy, muddy evening found them at a hotel in a small town in one of the Carolinas. The clerk was discoursing eloquently on local politics and did not notice the two gentlemen who had entered the office. After listening for some time Bill Nye dryly remarked, "Young man, you remind me of clay." The young man was at once greatly puffed up and asked, "What, Clay, the great Henry Clay?" "Oh, no, just common clay, such as they make drain pipes of," was Nye's answer.

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The College was chartered in 1818. It is most favorably situated in a city of about 10,000 inhabitants, at the most central point in Maine, in a region unsurpassed for beauty and healthfulness. It offers the classical course with 70 electives, also a course without Greek, leading to the degree of Ph. B.

The Library contains 34,000 volumes and is always accessible to students. The college possesses a unique Physical Laboratory, a large Geological Museum, and is the repository of the Maine Geological Collection. A new and thoroughly equipped Chemical Laboratory was opened in September, 1899. Physical training is a part of the required work. There is a gymnasium with baths, and an excellent cinder-track.

The preparatory department of the college consists of four affiliated academies: (1) Coburn Classical Institute, owned by the college, Waterville; (2) Hebron Academy, Hebron, (Oxford county); (3) Ricker Classical Institute, Houlton, Aroostook county; (4) Higgins Classical Institute, Charleston, (Penobscot county).

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PROFESSOR EDWARD W. HALL, Registrar,

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