

Alexandria-Annual 1900

**Class of 1900.**

# THESES.



CLASS OF 1900.

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ALEXANDRIA HIGH SCHOOL.

THE UNIVERSITY OF  
ALEXANDRIA, VA.

# SCHOOL ORGANIZATION FOR 1899-1900.



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**CLASS ROLL.**

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CAROLINE JONES.

ROSA LORCH.

E. RAY HARTING.

## COMMENCEMENT PROGRAM.

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Music .....	{ Spring Song, <i>Abt</i> ..... Gently Rest, <i>Kucken</i> ..... The Skies Resound, <i>Bethoven</i> .....	} ..... Chorus
Invocation .....		REV. C. E. LINE
Music .....	Gloria, <i>Trom Bordese's Mass</i> .....	Chorus
Address .....	Character .....	DR. E. E. WHITE
Music .....	Greeting, <i>Mendelssohn</i> .....	Chorus
Class Address .....		MR. J. T. GILES
Presentation of Diplomas .....		MR. I. V. BUSBY
Music .....	Way Down Upon The Suwanee River, <i>Foster</i> .....	Chorus

**THE CLASS OF 1900.****MOTTO.**

“Esse quam videri”

“To be and not to seem.”  
That's our motto good as gold  
For it means both truth and virtue  
As 'twas held in days of old.  
Let us keep it in our memories  
Bright and living, ever green,  
Let us live it day by day—  
“To be and not to seem.”

**COLORS.**

Old gold and light blue.

**YELLS.**

Rickety! Rus! Rackety! Res!  
Century class of A. H. S.  
Halay! Kazaw! Kazaw! Kazoo!  
1900 all the way through.  
Great class of Noughty-Nought,  
Four years bravely fought.  
Kis! Kaw! Biff! Baw!  
Nineteen Hundred, Rah! Rah!

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ANDERSON, IND.  
THE HERALD PRINT,  
1900.

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### MISSION OF THE AMERICAN NEWSPAPER.

Man is a social being; he desires to know about his fellows. In the early days of the race this curiosity was easily satisfied. It was possible then to receive and impart all desirable news by speech, as is oftentimes now the case in smaller communities. As the world grew and man's mental and social horizon enlarged this means of communication necessarily proved inadequate. And out of this condition the newspaper arose.

Its existence was made possible by the art of printing. Printing was invented and used in China at an early date, and to the Chinese must be given the credit of the first newspaper. As early as 713-741 A. D. a paper containing the news of the day was published in China. It was printed from movable type and consisted of ten or twelve sheets, stitched together in pamphlet form with yellow twine.

Independent of the Chinese invention, the art of printing had been invented in Europe by John Gutenberg, a German, 1448. But its extension throughout the continent was very gradual. People greatly feared the new invention and looked upon it as the Devil's art. The great part that printing played in making permanent the knowledge brought to light by the revival of learning helped to break down this prejudice. England received the new art with greater enthusiasm, partly due to the early publication of the Bible in the English tongue.

While the art of printing made possible the newspaper in England, the lack of a standard of prose and a flexible prose hindered its establishment. From the time of the venerable Bede to Wycliffe English prose had been slowly forming; but the three dialects still prevailed and there was no standard of English. Chaucer's persistent adoption of the Midland dialect fixed it as a standard, but the prose in vogue for many centuries was not adaptable to the discussion of the every

day affairs of men. Milton's prose was cumbersome and stiff, wholly unfit for practical purposes. It remained for Dryden to create a clear, direct and "work-a-day" prose.

The age of Anne, with its "frigid good sense," its correct prose style, its coffee houses and clubs, with their coterie of literary men was just the age to produce the newspaper. It was an outgrowth of the brilliant table talk of the distinguished literary men, actors and artists, who gathered about the table at the club to sip the newly-found beverage—coffee. The enterprise was talked over, decided upon and finally tried. The "Daily Courant," published in 1702, was the first successful newspaper in England. It was a tiny sheet, not "bigger than a man's hand," reporting the notable events of the day. This was soon followed by others more ambitious—the "Review," the "Tattler" and the "Spectator."

The "Tattler" may be considered as a type. It came out on Tuesdays, Thursdays and Saturdays. It contained theater notices, current news, advertisements, and an essay treating of some interesting topic of the day. This paper was a full expression of the life of the times.

In the fresh American intellect the newspaper found good soil. The first American newspaper published in Boston was "Publick Occurrences, Both Foreign and Domestick." This was followed by the "Boston Gazette," "New England Courant," "New York Gazette" and "New England Weekly Journal."

The newspaper found ample room for progress and development in America, being especially adapted to our national life. The newspaper is the best expression of contemporary life throughout the world. In nearly every paper we find articles discussing current history—national and international—crime, town talk news section, society notes

and fiction, freely interspersed with illustrations and cartoons. A look over one of the most widely read newspapers of today, February 15, 1900, reveals some interesting facts as to the scope of the newspaper.

#### HE IS DEAD.

His Giant Heart is Stilled. The Iron Hand  
That Opponents Had Learned to Fear  
Lies Lifeless on the Breast, Pierced  
By a Cowardly Assassin's  
Bullet.

Men Who Loved the Fallen Leader Smile  
Through Their Tears as They Re-  
call His Triumphs—Goebel  
Is Dead.

These glaring sensational headlines cover more than half the front page. It is well to show the leaders of men due respect, but not such indiscriminate partisan respect as this, nor to give an item such prominence in order to make the newspaper sell. This kind of enterprise is the bane of the modern newspaper. It is the same species of enterprise used by the little newsboy, who found himself in the midst of an exciting crowd rushing to a fire. Bringing all his vocal powers into play, he cried: "New York World! All about the big fire!" and he sold his papers too, for the human mob in its greed for the sensational, does not stop to think. The masses of people are sensational; they enjoy excitement, and would make this life one long climax if they could.

On another page we find a terrible murder "written up" in which five human lives have been taken by the cruelty of one hand: "The father kills his wife and four baby children." If you follow this case up during the arrest, trial, condemnation, or acquittal, you will probably find this same newspaper contradicting itself repeatedly, and adding to the crime hideous scenes that have no truth in them. Such information as this does not add to the general welfare of the individual; he loses faith in humanity and looks with suspicion upon his neighbors. The town talk and news section may not do such great moral injury. They are very necessary and are best appreciated in small communities. But when they deal in personalities and sarcastic jokes they become disgusting in the extreme. The society sections also hold a very stable po-

sition in our newspapers. It is very natural that we should want to know the outcome of the wedding, and whether the bride wore white or lavender. Though our honorable editor sometimes makes his discussions of the Vanderbilts and Goulds rather lengthy, we seem to bear up under the infliction and are on the whole well pleased. "Mr. Dooley's" comments on society events are, in a way, an expression of our national attitude.

On the last page of the paper we find the short story, which runs as follows: "Jack Miley, a Glasgow commission agent, receives word from a Belfast lawyer that a certain George Bourbon, who had bequeathed to his daughter, Lucy (aged six) a fortune of twenty thousand pounds, and had appointed Miley her guardian. She is sent to Glasgow on the following Wednesday. Miley immediately conceives the idea of murdering the child and of appropriating the money. He gives instructions for the money to be placed to his credit. He then thinks it best to burn the letter, but in the act is surprised by his former and deserted sweetheart, Sarah, who drugs him, steals the letter, has a copy forged, returns to Miley and departs. Miley awakes, burns the forged copy, and with the child's money proceeds to the ship landing; Sarah is too quick for him and already has Lucy in her possession. Sarah escapes with the child to a robber's cave, reached, of course, by an underground passage and rude elevator opening into a banqueting hall. Beyond this lies the inevitable black hole, and farther on the torture chamber. Miley discovers her there and attempts to take the bonds and the child from her. She, by the skillful use of her dagger again escapes with the child, but also with the loss of the bonds. From this point there is a game of hide and seek which lasts for fourteen years. After passing through many trials, Sarah and Lucy, who has become "beautiful as a dream," are employes under assumed names in Miley's great cotton factory, built with the stolen money. Frank Miley, the noble son of a most unworthy and degraded father, falls in love with Lucy's beauty and winsome ways and makes her his wife. "Virtue is rewarded and vice punished." Miley undergoes agonies of remorse and dies repentant. Sarah is provided for, and the writer concludes by "penning a few moral reflections on the story now brought to a close."

This story is very absurd, but, nevertheless,

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is a type of modern newspaper fiction. If Sarah was the intelligent woman described she could have easily brought punishment upon Miley, by a word to a policeman, or a line to the Belfast lawyer, whose letter she held in her possession. Moreover, Lucy had a brother, who in the event of her death would have inherited her fortune, and Miley would have been no gainer by her death. But it seems that its impossible plot and highly sensational character insure it popular favor. The story is impossible and very injurious. It fills the young girl's head with foolish notions, and not with the higher ideals and aspirations that good fiction inculcates.

Thus party politics, murders, suicides, burglaries, sensational fiction and all kinds of topics fill the front pages of our newspaper; predominating over religion, education, morals and all higher and better discussions. The newspaper, such a constant visitor to the family circle, should elevate rather than degrade. The young girl just budding into womanhood reads it and blushes in shame over its contents, but soon the blush gives away to conscious enjoyment. The young boy is hardened at the age of twelve and looks forward with eager expectations to the outcome of the murder or the scandal.

The right of cartooning in our newspapers is a mooted question today. We certainly cannot say that the cartoon has advanced civilization, nor done much to elevate mankind, except it be through the holding up of false ideals to ridicule, yet its evils have been over-estimated. It acts as a whip lash to public morals, exposing public and private foibles for general criticism. When a man enters public life his personality, in a way, becomes public property.

In this paper of February 5, 1900, there is a cartoon of President McKinley on a mule, led by the Honorable Mark Hanna. Now, it may not be pleasant for Mr. McKinley to gaze upon, but it seems as though he ought to endure it in the picture if the nation endures it in real life.

Let us look over the newspaper field in the United States. Perhaps of the newspapers published in the large cities the Chicago papers are of the best quality, and are most distinctive in character. In comparison with the papers of the East the Chicago papers are yet young. The oldest is not over fifty years old! It was in its infancy when the

New York papers had attained to a respectable age. The Chicago newspapers are more distinctly national than any other papers in the Union; their remarkable cleanliness is a very admirable characteristic. They are written for home circle reading; they lack the vulgar sensationalism found in other papers; they are well printed, cleanly edited and dignified. The Chicago public care less for sensationalism than the patrons of the eastern papers. The Chicago editor would consider it very risky to imitate the eastern paper in its sensationalism in news, or in the suggestiveness of its illustrations. However, the Chicago papers do not show the painstaking in the editorial page, the clearness of thought and terseness of expression that is characteristic of the New York papers. They are, moreover, rather monotonous in subject matter. This is probably caused by the co-operative news gathering agency in that city, called the City Press Association. This association is remarkable in its work. It gathers all the news from the eastern dailies, and at the same time keeps a close eye upon Mexico, the Pacific slope and the western States. Some of the leading Chicago papers are "The Record," "The Times," "The Herald," "The Dispatch," "The Evening Post" and "The Journal."

The Cincinnati papers fall greatly below the standard, both in subject matter and literary merit. They are highly sensational, and although the sale of "The Post" is almost as great as that of any paper in the United States, yet the truth of its statements can be rightfully questioned. As to "The Enquirer," a well known English professor of this State says that when one accidentally finds its way into his home he carefully removes it with the tongs.

The St. Louis papers do not stand high from a literary standpoint, but are generally conservative; while those of San Francisco are highly sensational.

The western newspapers are filled with denunciations of the East, its subserviency to the money power of Europe and its determination to crush the farmers and working people. The eastern papers cry out against the western voters and accuse them of being eager to offer their creditors fifty cents for a dollar. Now, as a matter of fact the East has not determined to crush the farmers, nor has the West formed a band for organized dishon-



esty. This sort of journalism creates misunderstandings between different sections of the country. If our newspaper men would but thoroughly investigate before they write a great deal of national trouble might be averted. In the same way misunderstandings between different nations could be checked and righted before they have a chance to develop into war. By the abolition of "yellow journalism" peace and harmony might prevail in matters of national and international interest in our land.

In England the newspaper is a member of the family and comes regularly to breakfast. Englishmen confide in their newspapers; write to them on all sorts of subjects. For instance, a man while traveling in the far East or remote West invariably writes to his newspaper, telling of his travels, the customs of the people and other items of interest. If horses stumble and fall in "Rotten Row" letters are sent to the newspapers which go into the column concerning road building and improvement. Thus the Englishman keeps his newspaper well informed; the editor has his news, but coming in close touch with the people, he is more able to issue an ideal paper than the American editor.

The Americans are apt to regard their newspapers too lightly. The Englishman takes his newspaper much more seriously than the American; first, because his paper is more accurate and more carefully written, and second because of the broader horizon and wider sweep of interest shown in the newspaper, due simply to the fact that this newspaper is the accumulated product of the people whose interests center around London, rather than the work of a single individual. The American newspaper is not so much the confidant of the people as their jester, their political organ and their would-be educator. It belongs to the masses and caters to their tastes. Its low standard can be attributed to enterprise. The editor writes what he thinks the people are most interested in or anxious to know about. It is enterprise, again, that makes each newspaper strive to out-do the others. In the strife they fail to realize or to attempt to realize a high ideal.

However, newspaper editors and reporters are not wholly responsible for the condition of newspapers. The public demands just such trash as the ordinary newspaper deals out to it. Managing editors have too much busi-

ness sense to fail to cater to the popular taste, even though it be vicious. The reform, if it does come, must, like all other reforms, come from the people themselves. If they demand a higher standard the newspapers will not fail to "supply the demand." William Paine, writing of the ideal newspaper says that it should be: First: a collector of news and that its work "be pure and simple and done in a scientific spirit, placing accuracy of statement above all other considerations." Second; that in its selection of news it should have "regard to real rather than sensational values." It should exclude, or at least lessen to the utmost those facts which it cannot possibly benefit the public to know, or of which the knowledge is likely to vulgarize popular taste, or lower the popular standard of morality." Third; that in its comments upon the happenings of the day "it is bound to be honest to stand for well defined principles and to express the sincere convictions of the intellectual head and those associated with him in his work." He thinks that the editorial page should compel attention and give the readers the right guidance. It should have a special department devoted to educational work and show great interest in our public school system. A newspaper edited after this fashion would certainly have a widely different influence from that exercised by the majority of the newspapers of our country today.

The newspaper, as it is, exerts a widespread influence over all civilized nations. It has made the world smaller; it is tending toward its unification in all institutional life; and, while we must admit that it sometimes "levels downward," its greater tendency is toward the elevation of the race. With the higher standard suggested by Paine, how much greater would be its power for good! It would then be an all-around educator, in art, science, government, religion, morals, and life itself. It reaches a class of society that our higher institutions of learning cannot reach; but instead of lowering its standard to the standard of the masses it should lift them into a higher plane of life and thought. The American nation has not yet reached a clear understanding of itself and we need a press, charged with national feeling, which will become "by virtue of its own true representative quality a revelation of what is in our life, and what our life should be."

BESSIE L. LINDSAY.

## A NEW DEPARTURE IN AMERICAN FICTION.

The literature of an age reflects the spirit of that age and the special literary form is determined by the ideals that prevail. That period known in literature as the Victorian Age is distinctively the age of the novel. Three distinct, though not separate forces have combined to determine its spirit and its literature—the advance of science, the advance of its democracy, and the consequent general diffusion of knowledge and of literature. The scientific temper of the times, together with its materialism and utilitarianism, is not conducive to the production of great creative literature. Rather it embodies itself in intense realism. Writers seek to paint life as it is, not as they might wish it to be. The novel offers scope for just such work. It deals with men in the everyday walks of life, "their loves, their hates, their successes, their failures."

Confronted by the complexity of life involved in the rapid development of this period, the early Victorian novelists tried to solve some of its problems. In England Dickens, Thackeray and Eliot wrote earnestly of man, striving to define his relations—personal, social and religious. At the same time in America, although Hawthorne was writing his mystical romances, such books as "Uncle Tom's Cabin" and "Fool's Errand" appeared. Following in the wake of "Hard Times" and "Adam Bede" in England came Kingsley's "Alton Locke," Mrs. Ward's "Robert Elsmere" and "Marcela" and Besant's "All Sorts and Conditions of Men." In the meantime America had produced a school of analytic realists, headed by Henry James and William Dean Howells. With these men the novel of our own country became a deep and comprehensive study along psychical or otherwise abstruse lines. With few exceptions this kind of literature has since prevailed in America.

But now the tired generation of the "fin de siècle" asks that the novel again be made a relaxation and an unalloyed pleasure. In compliance with popular demand the pendulum has begun to swing backward. The reactionary movement found early expression in England in the pure romances of Robert Louis Stevenson, perhaps the greatest of England's recent writers of fiction; and in Stanley Weyman's tales of adventure. In America its progress has been less marked. Just now, how-

ever, it is making itself felt in the remarkable revival of the historical novel.

Perhaps the revival of the martial spirit, now so evident throughout the whole world, may have been a factor in diverting literary effort into the new channel. Whatever may be the cause, this movement in literature seems to be more or less general, if we may judge from the translations of new books. Among these perhaps the greatest contribution of the world's best literature is the trilogy of Henryk Sienkiewicz, "With Fire and Sword," "The Deluge" and "Pan Michael." These books treat of that period of Polish history extending from 1648 to the election of Sobieski to the throne of Poland as Yan III. It embraces the most stirring and picturesque era of Poland's National life. The first book, "With Fire and Sword," tells of the conflict between the Slavs of Russia and Poland. It portrays the victory of patriotism over tyranny, of glory over shame. "The Deluge" deals with the story of the settlement of the Teutonic Knights in Prussia, the union of Poland, Lithuania and Russia, and the war between Poland and Sweden. "Pan Michael," the last of the series, gathers up the loose threads of all and out of them weaves a fitting fabric for a conclusion. It has been said that in the fiction of this century nothing approaches this trilogy for magnificent breadth of canvas, for Titanic action, and for an especial quality well-nigh Homeric. The characters are those of blood and iron, heroes of a great dead age. In "Quo Vadis" and his later historical stories Sienkiewicz hardly sustains the reputation the trilogy had achieved for him.

But it would seem that this revival of the historical in fiction is more manifest in America than elsewhere. A well-known critic has assigned the cause as follows: "The subject of history offers a great field to novelists; for fiction that is founded on fact and that which deals with actual personages has always seemed to possess a strong charm for Americans, who like to acquire knowledge, but wish to take it in a pleasant, sugar-coated form."

The recent historical novels written by Americans may be divided into two classes—those based upon the history of other countries, and those based upon American history. Of the first perhaps Marion Crawford's Ital-

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E. L. LINDSAY.



ian and Corsican stories are the best known. Stories of the days of chivalry also form a large proportion of this class. Among these probably none has been so widely read as "When Knighthood Was In Flower," a tale of court life and intrigue in the time of Henry VIII. But by far the most striking of the stories that deal with the history of other countries is S. Weir Mitchell's "Adventures of Francois." Herein is traced the career of a "foundling, thief, juggler and fencing master during the French Revolution." This thrilling period of French history is handled with masterly power. Great heroes live again in the pages of this powerful novel; great events take place before our eyes. We live over again all the horrible experiences of that terrible time. The description of the storming of the Bastille is superb. The story is full of adventure and romance and is strong in character delineation. The strange personality of the good-natured but wholly irresponsible and erratic hero could only be a product of such an era. Another story based upon the French Revolution is Gilbert Parker's "Battle of the Strong." The scene is laid in the island of Guernsey. The events are true to the spirit of the time, though the author disclaimed all intention of writing an historical novel.

The recent books bearing upon American history cover almost the entire field. The French and Indian War and is represented by Gilbert Parker's "Seats of the Mighty," which is considered one of the most powerful stories written in America in the last decade. The story charmingly depicts "the days of the old regime" in Quebec. It is bold in dealing with historic figures and is full of variety and vitality.

The Revolutionary War period is embodied in three books that vie with each other for precedence—Mitchell's "Hugh Wynne," Churchill's "Richard Carvel" and Ford's "Janice Meredith." These give a complete and attractive picture of American life in the last century, and are of positive value to the student of American history. In each is represented that inevitable conflict that must ensue at such a social crisis—a house divided against itself on political issues. In each there is a well drawn portrait of a grand old colonial "gentleman of the old school," intensely loyal to the mother country; and in sharp contrast, a daring liberty-loving young

man, a veritable "son of the Revolution," burning with zeal for the people's cause. In "Hugh Wynne" the contrast is most strikingly depicted. The grand old Quaker father, as true to "Old England" as to his religion, is righteously indignant at the fiery patriotism and independent spirit of his son, young Hugh Wynne.

Though the setting of the story in "Hugh Wynne" and "Richard Carvel" is the same, and the elements of the plots are similar, yet the treatment is quite different. Hugh Wynne and Richard Carvel represent two distinct types of young manhood clearly seen in their manner of adopting the cause of colonists. Both are products of the time. Historical events and personages are woven into the stories with great art. Neither author has made the mistake of subordinating his story to history. Yet no liberties have been taken with historical facts for artistic effect. The character of Washington is brought out in each; and the historical setting always true. The description in "Hugh Wynne" of the crossing of the Delaware and the capture of Andre are most accurate and most thrilling, and are artfully woven into the thread of the story.

In Ford's "Janice Meredith" the strong character delineation and the accurate and painstaking descriptions of the old colonial customs are the distinctive points. The rise of the bond servant, Jack Brerton, is a striking result of an intensely interesting historical condition.

Of these three novels of the Revolution "Hugh Wynne" seems to me to be most fully imbued with the spirit and character of the times, and of the society which it depicts. It has all the power of a personal narrative. Hamilton Mabee says of it: "The story has the charm of the old regime in Philadelphia; the atmosphere of a society, colonial in its occupations, and yet touched with old world elegance and refinement. I do not recall a series of study of women more delicately and surely touched than those which appear in this novel; nor do I recall any American novel of semi-historical character which is at once so accurate in its disclosures of manners and men, so courageous in dealing purely with historic figures, and so full of vitality, variety and charm."

While many short stories have been recently written about the Civil War period, very

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few of our present novel writers have used it as a theme. Mitchell's "In War Time," a story based upon his experience as a surgeon in the hospitals during the war, is interesting from many points of view. John Scott Clark's "Legionaries" challenges attention. The scene of the story is laid in Southern Indiana and it deals with the events of "Morgan's Raid." It is told from the point of view of a "borderman" and is fair, tolerant and moderate in its treatment. Its success in the north is an evidence that the fierce sectional spirit is at last dying away. Along the same line is Thomas Nelson Page's "Red Rock," a story of the reconstruction days. Perhaps no book of recent times so well depicts Southern life. Old Southern mansions, social customs and standards are faithfully described. But it is more than a merely interesting and picturesque story. It is of great value to the student of American history, for its just and sympathetic treatment of the political questions involved. One lays aside the book with new respect for the Confederate who fought so well for what he thought to be principle, and with the keenest humiliation at the treatment given to the fallen foe—the treatment that made it possible for the greedy, unscrupulous Northern carpet-bagger to do his worst. In the depths of our hearts we sympathize with Kreuda, the old colored "mammy," when she derides Leech, the typical carpet-bagger with: "Yas, I know jist what sort you is. You is the sort of houn' dog that aint got sperit 'nough to fight even a ole hyah, let alone a coon."

Among the many stories recently written of contemporary political life perhaps Ford's "The Honorable Peter Sterling" is the best;

but the racy sketches of William Allen White are clever and very true to the spirit of the time. Even Dooley's political monologues, whatever their literary value, certainly show in a forcible way one phase of contemporary history.

The scope of this paper only allows the mere mention of the briefest discussion of a few of the most representative books of fiction published in late years.

History offers rich material and extensive fields for investigation to the novelist. It is full of intensely dramatic situations enhanced by their personal interest to the reader. But it requires genius of the highest order to mingle historical fact with fiction and remain true to the spirit of both. Shakespeare has done this. It is true that he takes some liberty with facts, but never enough to violate the spirit of the time. The "poet's ideal is the truest truth," and history presented in this idealized way charms while it improves.

A prominent English divine has said that he never really knew the history of the country until he became a student of Shakespeare. Walter Scott, in his chosen field, brought the historical novel to a high degree of perfection. Lord Bulwer Lytton's stories, while perhaps more true to facts and more philosophical, are not more charming.

With such precedents before them, the literary men of today who have revived the historical novel may accomplish great things. It has frequently been said by literary critics that nothing has been produced in literature in America during the last twenty years that will endure. It may be that our success is to come in the newly-opened field.

CAROLINE JONES.

### IS OUR MODERN EDUCATION PRACTICAL EDUCATION.

Never before in the world's history has the cause of education been so paramount. The great cry goes up from all civilized nations, "Educate! Educate!"

But while the need for education seems thus universally felt, the ideas of education are widely diverse. Let us consider a moment the literary meaning of the term. The word education comes from "educio," which means "bringing out," or "leading out," that is "leading out or developing the latent powers of

an individual."

Education, then, includes all conscious effort on the part of parents, teachers, and others, by personal influence or by special course of study to bring out the latent powers of the individual. The philosophers would say, "Education is the growth and unfolding of mental and physical qualities, beginning in the individual's infancy." Thus is education defined from a time standpoint.

The real meaning of education is brought

out by a discussion of its aim. It has been said, "As the cultivated tree has been grown to aim at the typical tree of its kind so every animal of a given species approaches in perfection to its type, so education in its absolute sense aims at the realization of a typical man." The aim of education then is fully rounded manhood. Tompkins enforces this idea when he says: "Man seeks two aims in life, animal happiness and spiritual worthiness. \* \* \* \* Accordingly, education must serve in these directions."

The Greeks came near to this ideal. Great care was used in the development of the body. They believed that a healthful body was the best means of producing a strong mind and sound morals. This system probably reached its absurd extreme in Rome, but the reaction was correspondingly great.

Through the early Christian era the Scholastics taught that the spirit of man was elevated and refined through the degradation and mortification of the body. This idea prevailed long after Scholasticism, and the theory, "Nor soul helps flesh more than flesh helps soul" is an entirely modern one, the training of the physical man being slowly but surely recognized in all educational systems of today.

The necessity for the training of the spiritual side of man's nature has been recognized by all educational systems, but all have not agreed as to the particular lines to be developed. Intellectual training, however, has all the while prevailed, almost to the exclusion of the training of the emotions or will, except incidentally. But the end of education is the typical man—the man who feels and does, as well as the man who knows. The knowing, desiring and willing powers of the mind differ greatly in different individuals. So it should be the purpose of education not only to develop these activities, but to so nicely balance and adjust them that each may strengthen and support all. That system which fails to produce a well-rounded man physically, mentally and morally, fails in its highest purpose.

Every nation embodies in its educational system its own ideals. President Hadley, of Yale, in his address on "University Ideals," said: "In France the specific end of education is to turn out thoroughly trained professional men; the German education, although broader and more comprehensive, tends to

the same result. Men are made fine instruments in the work of civilization, rather than self-sustaining and self-directing leaders in society. In England the university trains its students to exercise the powers and responsibilities of rule, and gives them a conception of the place they are to hold in society; in this country, where the basis of government is broader even than in England, higher education must prepare men for their large duties as citizens rather than for professional life."

Let us glance rapidly over our system. In each State great professional training schools have been established, where teachers are trained in the best methods based upon psychology and the nature of the subject taught. The State, county and town, realizing the necessity of a community made up of citizens with a comprehensive knowledge of fundamental principles, has a special fund for establishing and supporting public schools. There is the kindergarten, the common school, consisting of primary, intermediate and grammar grades, and the high school, which has had a marvelous growth and is now considered necessary, even to the district school. These have become the "people's colleges" and have so broadened in their curriculum that colleges and universities have been forced to change their courses, so that their work may not overlap the work of the high school.

In connection with our public schools the Sloyd system has gradually gained ground. Schools of manual training everywhere prevail, and the gymnasium has become a necessity. With the training of the intellect and the body, the aesthetic nature is also trained by music and by art.

The public schools are not the only means of education. There are private schools, parochial, and those patronized, largely, by people of means, who, to quote Robert Grant, "ought to be the most patriotic citizens of the Republic." In his discussion of the school question, he further says: "I frankly state that I, for one, would not send my boys to a public school unless I believed the school to be a good one." These private schools have the chance to do a high grade of work, because they are oftentimes largely endowed and under the management of rich corporations.

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our land for higher education, colleges—denominational and otherwise, professional and for liberal culture—and lastly the university. Though many institutions which we dignify by that name do not deserve it, yet the work done in our best will creditably compare with that done in the universities of older countries with the exception, of course, of the famous European universities.

After all, when a man has passed through the different stages of development afforded by the educational systems of today, the world asks of him, "Has your education fitted you for practical life?" It looks over the course of study he has pursued and asks "why this was studied?" "What good has that done?" and finally, "What are you going to be and how has each study pursued contributed to make you a successful business man?"

So it is that the utilitarian idea prevails. Practical education is generally viewed as that education which trains the mind along the special line to be pursued in business, irrespective of the culture or disciplinary side; or, as Ruskin says, "It is that education which puts a better coat on the boy's back, or that enables him to ring with confidence the knocker at double-belled doors, and after a while to have a double-belled door of his own."

In years past, if a man intended to be a farmer, a mechanic, or a merchant, he considered time spent in college as so much time foolishly spent. Now the fields are being cultivated by educated men, machinery is operated by men who have taken degrees from well known schools, and the time is fast approaching when every branch of industry will be operated by college-trained men. That the live business man of today realizes that he, too, must have a broader education in order to keep abreast of the times is shown by the fact that a considerable per cent of students in college today intend to enter the business world. Out of the four hundred and eight members of the graduating class at Harvard this year one hundred will enter business. In former years when a young man was intended for the professions—with the probable exception of the ministry—he was given only a secondary education, and sometimes not even that. But after a sort of apprenticeship to a "master workman" in his chosen profession, he began at once to specialize in a professional school. Of a necessity such men are

narrow, knowing only their own line and seeing all others from this biased point of view. Specialization, without a well-rounded development of the mental faculties is like building a house upon sand. Professor Hadley puts the case well when he says: "The lawyer or doctor who begins his professional study too young is likely never to be anything more than a lawyer or doctor. Men who today enter professional life spend several years in colleges in liberal culture before they begin to specialize in their chosen line of work. Even after they become established in their professional life they return to the college from time to time, to grasp the new ideas that may have been developed meanwhile.

Is this latter kind of education practical education? Professor Coulter answers the question: "Plainly practical education is that kind of education which will bring about the development of this mental muscle, this preparation which is to bring ability to grasp one's specialty and the problems of life."

If the product of liberal education be the type it ought likewise to produce all the excellencies of the individual. "A clerking man, or a farming man is not so serviceable as a man clerking or a man farming." It has often been argued that the college-bred man is not a success in a business way. It may be that he does not succeed in amassing wealth, but perhaps that is not his highest ideal. The following clipping from a college paper shows well for college training in citizenship and leadership: "One-fifth of one per cent. of the inhabitants of the United States are college-bred men, yet they furnish thirty per cent. of our congressmen, fifty per cent. of our presidents and over seventy per cent. of our Supreme Court judges.

When education develops the intellect, the emotions, and the will, and gives us types of noble manhood and womanhood; when the physical, mental and moral qualities are developed, with the idea of giving to the State, nation and world true citizens, representatives and officials; when the training assists a man not only in choosing his profession, but also in the performance of his highest duty to God, to his fellow-man and to himself, then and then only, can education be termed practical in the largest sense.

MARY DAVIS.



## READING AS A FINE ART.

Before the "shades of the prison-house begin to close upon the growing boy" he expresses his feelings without restraint. He possesses that spontaneity of speech, which, in more mature people is entirely lost, or held in check by force of will, when "custom lies upon us with a weight heavy as frost and deep almost as life." The imaginative faculty of the child is very active; the prosaic world of fact fails to satisfy him, so he constructs for himself a world of "make believe" and inhabits it with people of his own creation. Wordsworth pictures him thus:

"Behold the child among his new-born blisses,

A six-years darling of a pigmy size;

See where 'mid work of his own hand he lies  
Fretted by sallies of his mother's kisses,

With light upon him from his Father's eyes!  
See, at his feet some little plan or chart,

Some fragment of his dream of human life,  
Shaped by himself with newly-learned art;

A wedding or a festival;

A mourning or a funeral;

And this hath now his heart,

And unto this he frames his song;

Then will he fit his tongue

For dialogue of business, love or strife.

But it will not be long

Ere this be thrown aside,

And with new joy and pride

The little actor cons another part;

Filling from time to time his "humorous stage"

With all the persons down to palsied age

That Life brings with her in her equipage;

As if his whole vocation

Were endless imitation."

In these early psychical experiences the art of elocution finds its source. The antiquity of the art can be well established. It is almost as old as history itself, for it has been the handmaid of religion. Religion, a natural instinct, reveals itself in acts of worship and service. The root of these lie in the very constitution of man. He sees the mighty powers of nature working around him, pregnant to him with hope and fear, in supplication and in worship his heart speaks. From its earliest development religion has formulated rituals. These ceremonials were sometimes sung, but as often recited with appropriate gestures of the rhythm of the stately processional march and the accompaniment of musical instruments. The Gregonian chants of today, beautiful in melody and expressive

of filial humility and submission are a survival of these recitative rites of the altar.

The art of recitation also developed in connection with epic literature. From the lips of the bard fell the wonderful words, sometimes chanted to the accompaniment of the harp or zither, but as often recited with wild and telling gesture. The epic is usually connected in our thoughts with song, but investigation has proved that parts and oftentimes whole epics were recited. Recitation and chanting have not only been the vehicles of epic literature, but they have likewise been the means of preserving and transmitting them through the lapse of years. Had not the fragments been preserved by "word of mouth" before written language had any existence all the beauties of the "Aeneid," the "Beowulf," the Nibelungelied" and the "Kalarula" would have been lost to the world. In the minds of the wandering minstrels they frequently assumed new shapes. From generation to generation thus they passed, until the art of writing made their preservation for all time possible.

In the sixth century, B. C., a recitation of the poems of the Iliad and Odyssey was one of the long-established competitions at the Panathenara, which was held once in every four years. The rhapsodists, or reciter, did not use the accompaniment of the harp, as did the wandering minstrels, nor give it the tone-chant. He simply bore in his hand a branch of laurel, the symbol of Apollo's inspiration. Through its connection with religion and with epic literature the antiquity of the art is established beyond question.

In the later history of the early classic states recitation is found developing co-ordinately with oratory. In the days of Demosthenes and Aristotle the youths of their schools were taught rhetoric, logic, philosophy, oratory and the vocal interpretation of literature, whole dramas being oftentimes memorized by the students. To show the high esteem in which this power of giving a vocal sympathetic interpretation of literary masterpieces was held we have only to cite the frequent freeing by barbarous nations, of Greek slaves who could recite the poems or the plays of their native bards. Professor Syle, of the University of California, says:

"In the year four hundred thirteen, B. C., when the inhabitants of Rhodes determined

to transfer to Sparta, Balanus so loyal that to Athens. In storm they were entrances of the sans, cherishing borage to the about to face the Syracusans did could recite v anstion, in re them all from

And, again, in games attended by the writes seized games to bring notice by the Thus, it is said his history, an art as did Greece freedom and the study gesture of pas

There is, moreover, recitation and twin-born, both tendency toward first consisted in combination of song. But soon, and recitation. In its very only one actor merely recitation introduced two actors. With the the elocutionary the broader art of recitation never had excluded from art combines all ners, costumes, beautiful whole ary masterpiece

The art of elocution has been entirely lost in the 19th century, when the custom of reading aloud was common. At times a poet recited an enthusiastic recitation of some favorite for some great art to the dignity by the incomparable man. Its place

to transfer their allegiance from Athens to Sparta, Balanston, a maiden in Rhodes, was so loyal that she persuaded her family to fly to Athens. Driven out of their course by a storm they were chased by a pirate to the entrances of Syracuse. The hostile Syracusans, cherishing bitter memories, refused harborage to the vessel. In despair they were about to face death from the pirate, when the Syracusans demanded if any one on board could recite verses from Euripides. Balanston, in responding to the request, saved them all from death."

And, again, at the time when the Olympian games attained their greatest popularity, writers seized this opportunity afforded by the games to bring their own works under public notice by the dramatic recitation of them. Thus, it is said, Herodotus recited much of his history, and rhetoricians displayed their art as did Gorgias. After the diminution of Greek freedom oratory somewhat declined and the study of initiating the tone-color and gesture of past orators flourished.

There is, moreover, a close relation between recitation and the drama. They are, in fact, twin-born, both arising from man's natural tendency toward imitation. The drama at first consisted simply of choral odes—a combination of song and dance—a scenic song. But soon, and very naturally, it fell into action. In its very beginning, when there was only one actor or interlocutor, it was, in fact, merely recitation. Soon, however, Aeschylus introduced two and later Sophocles three actors. With the development of the drama the elocutionary art gradually merged into the broader art of acting. But, in truth, recitation never has been nor will ever fully be excluded from the art of the dramatist. His art combines all arts—painting, music, manners, costumes, elocution and acting into one beautiful whole, the vehicle for a great literary masterpiece.

The art elocutionary, however, has never been entirely lost. In the eighteenth century, when the drama became so corrupt, parlor readings came greatly into vogue. Often times a poet read his own verses, but as often an enthusiastic admirer gave his interpretation of some favorite poem. It now remained for some great genius to raise the reader's art to the dignity of fine art. This was done by the incomparable work of Charlotte Cushman. Its place as a fine art and its perma-

nency was fixed by the beautiful interpretation of Mrs. Scott Siddons in the last generation.

From this time on it remained a separate art, but its relation to acting is still very close. Both grew out of the same impulse in man, and both attempt to present all the sides of the author's soul, "sides as many as those cut into the diamond and flashing forth as many variations of color." But the actor has the advantage always on his side. He plays but one part and is aided by all the accessories of dramatic art, while the impersonator tries to give the same impression by the voice alone.

In this connection the question just how much of the actor's art, costuming, gesture and expression may be borrowed by the reader and just how much is to be avoided enters into the discussion. We know that tricks and affectations too often result when anything is borrowed, and yet a powerful individuality is necessary to the reader who leaves out all acting.

One of the most important ideas which the elocutionist must have before him is that elocution is an art and not an opportunity for egotistic display; and that Delsarte's contribution to the art of expression—artificiality in gesture—is slowly but surely losing ground. Until this ideal be attained and acted upon, the artistic standard can never be reached and the reader can never become a real artist. There is a strong tendency among a certain school of elocutionists today to make too much of gesture, and particularly of curves in gestures. Every motion of every part of the body must be in a curved line, until the effort resembles the effect of the over-trained musical voice—artificiality. At no time should gesture overshadow vocality, yet how often do we see a recitation, rather than hear it. We forget all about the story in our interest in watching the marvelous gestures of the body, and in our wonder as to what may happen next. An incident found in an article, written by a most enthusiastic Rushite, exactly shows the need of the systematic study of fitness in the relation of thought to its expression, and the absurdity of "mimetic action;" is told as follows:

"A popular reader of Boston, giving last season Wordsworth's 'Daffodils' when she came to the last two lines,

And when my heart with pleasure fills,

POPULAR LIBRARY  
ALEXANDRIA, IND.

And dances with the daffodills,  
put her hand to her heart, and with pleasure,  
indicated by a sentimental flash of the eye  
upon the audience, danced a few graceful  
steps expressive of exuberant joy, and bowed  
herself off the platform amid the vociferous  
applause of the audience." However, the  
reader's taste, in this case, was no worse  
than the taste of the audience that applauded  
her.

Many have challenged the claims of elocution to the standing of a fine art. Let us consider the question for a moment. Art has its two phases, the creative and the reproductive. The painter mirrors nature upon his canvas; the sculptor molds the human form. Each reproduces that which already exists. Literature and interpretation are but two phases of the same art—the one creative, the other reproductive. Elocution in its highest sense means the interpretation of literature through reading or recitation. The reader, if he really read, is forced to live over again the creator's ideal. This makes valid his claim to be called an artist. Stopford Brooke says: "He who recognizes and is moved by the beautiful is artistic; he who makes that beauty manifest to the world is an artist." It is universally admitted that it requires high intellectual and imaginative qualities to grasp a great play or poem in its entirety. If, now, through the technique at the disposal of the reader he can make the author's thoughts and feelings clear to the audience, has he not fulfilled the requirements of the artist?" "But all reading is not art," and the art of reading is acquired only by patient study. While it is true a great deal depends upon natural endowment, and the personality of the reader, there is much that must be accomplished by years of work before the standing of the artist can be reached.

To properly interpret a masterpiece the reader must study and sympathetically interpret its every line in order that he may gain the author's conception. To attain this end an extensive and intense knowledge of literature is essential. Elocution proper is the art of "bringing out that which is within; that is to say, in a double sense, within the words, or the thought intended by the writer and within the speaker, or the feeling awakened by the thought." He must be able to choose the "significant symbols" by which this or that phase of character is to be brought

out; which to enhance; which to subordinate." The real interpreter is he who makes clear to consciousness what was obscure; who changes the idiom of a foreign tongue; who specializes and individualizes thought; who develops thoughts, stimulates feelings, grows desire and moves action."

Sympathetic vocal interpretation, then, is the most complete and perfect interpretation of literature. There is no literature the significance of which is not greatly heightened by adequate vocal expression; the "voice kindles our imagination, awakens our interest, and forces upon us, unconsciously, a mental activity, such as we seldom or never receive through the eye alone." The time of the old-time elocutionist, "who so strutted and bellowed" that he earned for this glorious art a prejudice, which many say will never be lived down, is past.

The highest results of literary culture that can be exhibited in the vocal rendering of a great poem, is bringing out the inner soul of the poet. It has been said "that you can not tell whether anything will live or not, till you see whether it will bear oral utterance."

So, after a long period of charlatanism, elocution has again taken her place among her sister arts, the handmaid of the highest literature.

Turning aside from the wholly aesthetic point of view you may say, "What is the poetical value of such an art?" Elocution not only helps to a better appreciation of the ideal in life; but it gives us greater power mentally and physically. It trains the perceptive faculties, the imagination, the memory, the reason, the emotions, and even the sense of right and wrong. It gives self-possession, tact, grace of body and poise. It heightens the expressiveness of the eye, and what no American can afford to ignore it gives a beautifully modulated and expressive voice. It also trains to correct articulation and enunciation. All these things have a "cash value," but their real value cannot be so estimated.

Upon the new basis, that elocution is an aid to literary interpretation, and its value as a disciplinary study, the colleges and universities have created departments of elocution, where the subject is given scientific treatment. With this condition of affairs the future of the art is assured.

L. GAYE STOMS,

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### SOME CONCEPTIONS OF THE AMERICAN GIRL.

From America, a new country and a new nation, has sprung up a new type of womanhood. It is, too, a type of such distinctive characteristics that an American girl is easily recognizable in any other country, among any other people. Nevertheless, hers is a character so variable and uncertain that to single out its salient points has not often been attempted.

English and American writers have put the American girl in their books and stories; some have even written articles upon her, but most of these have dealt with a particular and not the general type; and few of the writers have gone to their work without prejudice. Of all the articles the ones most liberal have been written by the Englishman, Kipling, and the Irishman, Bryce. The chief reason for this is, I think, that these are not only men of close observation; but they are men who have had the added advantage of seeing the American girl in comparison to the girls of the European countries. They are thus better able to grasp her national characteristics than are those among whom she daily dwells. Both men have recognized her spirit as arising from the national innate love of freedom. She is a "daughter of the Revolution."

Kipling has paid her a most gracious tribute, which is as well a tribute to his own liberality and broad-mindedness, in saying that she surpasses not only the girls of the Continent, but those of his own country. Adding of the American girls:

"They are clever; they can talk. Yea, it is said of them that they think. Certainly they have the appearance of so doing. They are original and look you between the brows with unabashed eyes, as a sister might look at her brother. They are instructed in the folly and vanity of the male mind, for they have associated with 'the boys' from babyhood, and can discerningly administer to both vices, or pleasantly snub the possessor. \* \* \* They are self-possessed without parting with any tenderness that is their sex-right; they understand; they can take care of themselves; they are superbly independent."

He says also that while the American girl does not, as a rule, abuse her freedom, yet it "has its drawbacks;" that "she is irreverent," and "takes every gift as a matter of course."

Then as if to counter-balance—"Yet they develop greatly when a catastrophe arrives." Kipling has discussed our girls mostly in their relation to men, and he thinks that since the American girl knows before her marriage "that a man is not a demi-god, nor a mysteriously veiled monster," she is better fitted to make a good wife. He closes with:

"When the American maiden is once married why, it is finished. She has had her lovely time. \* \* \* She abdicates promptly with startling speed, and her place knows her no more, except as with her husband. The queen is dead, or looking after the house."

Bryce has suggested much the same thing in his "American Commonwealth," though in quite a different way. He believes that the "conclusions of a stranger are in such matters of no value," but adds that his own opinions have been confirmed by the opinions of many educated American women. "The new world customs," he said, "conduced more, both to the pleasantness of life before marriage and to constancy and concord after it." American women have all the nation at their feet; but he says, they have given to their nation as full a measure as they have received.

A cosmopolitan character of the Old World, a Franchman, of Russian father and English mother, sees the American woman in quite a different light. Paul Bourget's discussion of the American family in his "Outre Mer" is really a discussion of the wives and daughters. His theories are certainly unique. He has cited a few truths accurately, but others he has exaggerated. He recognizes in the American girl her strong will, her adaptability, her quickness of action, and, lastly, her intellectual superiority, but to him she has a peculiar significance, her vitality is "nervous sensitiveness," less affecting than irritating." He sees combined in her all the follies of her kind, and they assume monumental proportions. In a rather doubtful compliment he calls her "The American idol," and in contrast to Kipling's idea of her womanly emotions, and "sweet, irrational choices," he says:

"This woman can do without being loved. She has no need of being loved. What she symbolizes is neither sensuality nor tenderness. She is like a living object of art, the last fine work of human skill, attesting that

the Yankee, but yesterday despairing, vanquished by the old world, has been able to draw from this savage world upon which fate has cast him, a wholly new civilization incarnate in this woman, her luxury and her pride."

Among the new novels the character truest to my conception of the American girl is "Helen Fisbee" in "The Gentleman from Indiana." Booth Tarkington has evidently been a student of American life. Helen Fisbee is pretty (all American girls are supposed to be pretty) has an easy manner—college-bred—is well educated, capable, possesses good business qualities, and is withal dainty and girlish. In the enumeration of her qualities the very femininity of the conflict in her emotions in times of excitement and doubt must not be omitted. Her sense of gratitude, her paternal and her maidenly love appeal to our sympathy, while her freedom of action and charming reserve, challenge our admiration. What girl but an American would have assumed such responsibilities? In what other country than ours would her training and environment have made it possible?

Most of the distinctive types of the American girl have been "written up," their peculiarities commented on and their virtues praised; but, strange to say, the virtues are not unusual in the general type and the peculiarities are only oddities in customs, usually some limitations of freedom which the average girl cannot understand. Such types are generally found in some limited societies, which through peculiarities in education—as in the case of some of the wealthier classes—have adopted foreign customs, or through contact with other nations—as in the case of those communities bordering Mexico or Canada—have gradually assumed some of their mannerisms. In the last few years there have been many articles published discussing this side of American life. Among them are: "The Most Aristocratic Social Event in America," by William Perrine, on Philadelphia's "oldest and best families;" "Social Life in America's French City," by Harrydale Hallmark, on New Orleans' society, and "The Creole Girl of New Orleans," by M. E. M. Davis.

In Mary E. Wilkins' stories we find the New England, but not the National type, and Bret Harte has given us a few western girls of the earlier period, while Charles M. Harger has traced the development of the modern western girl's life. Floy Campbell in "Girls

of Camp Arcady" shows a few New York girls from different parts of the country that have the American independence.

One of Mrs. Burton Harrison's American girls, Sybil Gwynne, is a striking contrast to Helen Fisbee, in surroundings, education and personality, though the two girls have national traits in common. Sybil reared in a wealthy and "exclusive set," with an inbred dignity and reserve, educated abroad and imbued with foreign ideas, is of a more cosmopolitan character, but upon contact with "real Americans" all her latent patriotism is aroused, and with a characteristic enthusiasm and vigor, she exerts all her best efforts in making herself "like other American girls." As we watch and follow her our sympathy goes out to her, even when we are disgusted with such ignorance of one's own country, and we pity the weaknesses such an education develops.

Unlike the writers, the artists have somewhat idealized the American girl, though, in fact, the ideals are often only exaggerated truths. (You know exaggeration is an American trait.) Since art has not developed as rapidly as the literature in this country, and we have few great artists. The branch of art the average American is most familiar with is the illustrator's, and in that one has flourished the American girl. She is, in fact, one of the most popular subjects since the "Gibson Girls" have taken such a hold on the public.

Charles Dana Gibson's drawings of the American girls have been his means to fame, and his fame has been the honest reward of his ability to portray the American man's ideal of his country's women. One cannot look at his pictures without a feeling of sympathy for the chivalric and understanding nature that is their origin; and this feeling is an outgrowth of our increased respect and admiration for the woman with the tilted chin and noble forehead, upon his paper. Tall and athletic, every line a line of grace, her very beauty wins us, the beauty of physical and mental development, rather than of regularity of features. Her figure is superb and her expression charming. The smile, with the curl of the short upper lip, is expressive of her pride and perfect independence; the arched eyebrows show her nobility and the firm chin her will power.

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girl of this character in a position showing her sensitiveness, her taste, and yet her tact. I remember one picture in particular of a debutante surrounded by a group composed of several English noblemen, her English chaperon and a young American. The figures were so arranged and the expressions so true to life that it was easy to see the girl's preference for her countryman, her disgust at the snobbish English woman, and contempt for the money-seeking lords, yet withal she had used her "American tact" so effectively that the Englishmen were self-satisfied and the American at ease, though not exactly satisfied.

Several other illustrators have sketched the American girl, but there is no great difference in the general idea of her appearance and character. Now whether it is that all these artists cannot make life pictures of her without having them similar, or whether they have borrowed from her first photographer, Gibson, I can only leave you to decide for yourselves, but to me the artists have understood her best. Although they have idealized her in many respects and have magnified her virtues, still they have discovered her fundamental characteristic—the right kind of pride—for she is proud of her country, proud of its people, proud in her loves, and too proud of herself to stoop to anything little or mean. This pride is the keynote of her character; it is the origin of many of her virtues, a few of her follies, and the majority of the misconceptions about her.

In the American girl's make-up there is one most prominent quality that no one has more than touched upon—that is her humor. Her conversation sparkles with it, her laughter rings out at a particularly good point, and she is fully as quick at repartee as her brother. It is as relieving a contrast to the European girl's polite monosyllables, as is her capability in discussing intelligently history and politics. It is this, as well as her own delight in life, that makes her company enjoyable. That she likes a good time, must be admitted, but fortunately, she is generally as energetic in her work as in her play. Every day we hear of the triumph of some American girl, in either a new or an old line. Sometimes it is in music or art, but just as often in business, the professions or science. In pursuit of what in America is called "higher education" she certainly surpasses the foreign girls, but she is not fully emancipated from their small feminine vanities. Her absorption in the broader questions of life prevents her devotion to those vanities and follies which have come to be regarded as characteristically feminine, but that she has them is sometimes revealed in unexpected places and at times not anticipated. Still, in all due praise of her virtues, and charity for her weaknesses, let us say of her: "May the American girl multiply her virtues, overcome her faults, profit by the just and by her gentle and gracious manner, triumph over all unjust criticisms."

CHARLOTTE N. MYRICK.

### WIRELESS TELEGRAPHY.

The nineteenth century is distinctively the age of science. A large proportion of the intellectual world during this century has been engaged in studying its complex problems, and the results of this study has materially affected the outward conditions of our daily life. Perhaps no branch of applied science has so revolutionized these conditions as the study of electricity, and surely none has had so rapid or so great an advancement.

The applications of electricity are numerous, involving a great number of inventions of this century. These inventions may be classed under two divisions—those for motive power, and those for the transference of thought symbols. Electricity has been applied to motor vehicles and electric railways. The

chief inventions for the transference of thought symbols are the telegraph, telephone and wireless telegraph.

The history of wireless telegraphy extends over more than one hundred years and contains the story of many interest experiments by the leading scientists of both Europe and America. The first facts concerning the wireless telegraph were gained from general laboratory experiments, and from accidents, such as the breaking of cables and telegraph wires, more than from direct experimentation on the subject itself. The first experiments in which the wireless telegraph was shown to be more than possible and even useful to man, were between moving ships and between moving trains.

The importance of telegraphing at sea is very great, especially in heavy fogs and rough seas. The apparatus in this case consisted of a powerful dynamo connected to two wires, one wire dipping into the sea at the bow, the other much longer and dragging over the stern, was buoyed up, so as not to sink. There was also in the circuit an instrument to break the current into signals. The water around the end of the wire from the stern became saturated with electricity and a ship, having the same kind of an apparatus as that used in sending, coming into this saturated area was able to receive the signals.

Telegraphing from trains and between moving trains is equally as important as telegraphing between ships, but not so practical. This is accomplished by the method of induction. Each car has an apparatus which has a high potential, connected to the wheels, which by induction transfer the signals to the earth, whence they are taken up by the telegraph station or another train.

One of the first practical applications of the wireless telegraph was by Preece. This application was made in 1892, in the Bristol Channel, between Lavernock Point and Flot Holm Island, a distance of three miles. In 1895 he established a permanent line between the Isle of Mull and Oban, in Scotland, a distance of two miles. In 1898 he established a permanent line between Lavernock Point and Flat Holm Island. In both instances he used almost the same apparatus, consisting of a rheotome, or a make and break wheel, a battery of one hundred Leclanche cells, a Morse key and a telephone receiver. The principal part of, this apparatus was the rheotome which was capable of stopping and starting the current about two hundred and sixty times a second. When a signal was sent out from one station, the rheotome of the other station made it possible for the Morse instrument to record the signal in dots and dashes.

Mr. W. Smith, from 1887 to 1895, made many experiments on the wireless telegraph between shore and light houses, and between shore and passing ships. His apparatus was similar to that previously used between ships. The most important work of Mr. Smith was the establishment of wireless communication by water between Fastnet Rock and Crookhaven, a distance of eight miles.

Thus far nothing but water and earth had been used as conductors of ether waves, and

no apparatus had been invented sensitive enough to be influenced by any except very strong electrical impulses. This was left for an Italian, Guglielmo Marconi, to do.

Marconi was born in Italy April 26th, 1874. He was educated at Leghorn and at the Bologna University. At the latter he studied under Prof. Righi and became familiar with the work of both Maxwell and Hertz, the two men who have contributed most to the theory of electricity. He made his first experiments while living on his father's estate in Italy, in 1895. His attempts were so successful that he soon wrote of them to Preece, the English scientist. His chief addition to the apparatus previously used consisted of small tin boxes set upon poles. These he called capacities. He discovered that with these, on poles two and two-tenths yards high, signals could be received from thirty and six-tenths yards distance; and with capacities on poles four yards and a half high, signals could be received at one hundred and nine yards distance. Encouraged by his success, Marconi came to England in 1896 and obtained the aid of W. H. Preece, with whom he carried on many experiments and advanced wireless telegraphy to its present state of development.

Marconi, in his first experiments in England, attempted the use of balloons to support his vertical wires, but soon abandoned this, as the wind destroyed the balloons. So he returned to the use of masts or poles. His first attempt was between the Isle of Wight and a ship in the channel. After many months of trial he succeeded in telegraphing to Bournemouth, on the mainland, a distance of fourteen miles. Here he set up a permanent station.

This system of wireless telegraphy was next used in the English yacht race of 1898, when over seven hundred messages were transmitted. In the following year, 1899, permanent stations were set up for the transmission of signals between Dover, England, and Boulogne, France. This was the greatest test of the Marconi system and it was successful in every way.

So great was Marconi's success in telegraphing in the English yacht race of 1898 that he came to the international yacht race in America in 1899. A vessel at Sandy Hook was supplied with a receiver and Marconi fitted up a sending apparatus on the steamer "Ponce," from which he sent signals every quarter of

an hour. The New York a over.

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an hour. Thus the results were known at New York almost as soon as the races were over.

There were two important facts which made Marconi's attempt at wireless telegraphy so different from and so much more successful than the attempts of those who tried it before him. These two facts were the idea of aerial telegraphy and the improvement made on the Lodge receiver so that it would receive ether waves.

A statement of the principles involved and a description of the Marconi apparatus are necessary to a clear understanding of the wireless telegraph.

If a vibrating body communicates its energy to an elastic medium it generates waves in that medium. A vibrating tuning fork sets the air around it in vibration and waves of sound are generated. Similarly for a candle, the ether around the candle is set in vibration and waves of light are generated. So it is with an electric spark. It generates waves in the ether similar to those of light and sound. They are shaped like spherical shells; they travel with the speed of light, but they are not of the same length as light waves, and therefore do not affect the eyes. They pass through anything except metal conductors. When a vibrating tuning fork is placed against a table the sound becomes louder because the fork communicates energy to the table and the table re-enforces the sound. So if the spark passes between large metal shells such as tin buckets, the waves generated are stronger, as sound is stronger when the tuning fork is placed on a table, because the resonating surface is larger.

When a current of electricity is generated by a battery or other electrical machine it flows out from one part of the battery and the same quantity must flow back into another part of the battery through a continuous conductor. Now, if in this conductor there is a bad joint, such as that between two nails lying crossed on a table, or if the current must pass through metal filings, which offer great resistance, ether waves form an electric spark, striking this bad joint or these filings, decrease largely the resistance offered to a flow of electricity. Prof. Lodge, an English scientist, perfected such an invention with filings in a glass tube half an inch in diameter. These filings were fastened in the tube by copper pistons which were regulated to any degree of

pressure. This apparatus is called the Lodge coherer.

These facts Marconi has applied and these instruments he has used in perfecting the most successful system of wireless telegraphy yet invented.

The apparatus for sending is easily understood. It consists of any electrical machine to produce sparks. This usually consists of a Ruhmkorff coil, an instrument to convert an ordinary current of low pressure to one of very high pressure, so that the current will pass from one conductor to another and produce a spark several inches long. This coil is connected in a circuit with a battery of a few cells, a Morse telegraph key and four solid brass spheres. Two of these spheres are larger than the others. They are about four inches in diameter and one twenty-seventh of an inch apart. These are made larger, since they are used as resonators and the resonance depends upon the size of the body. The surfaces nearest each other are fixed in an oil tight case of parchment or ebonite, the space within being filled with vaseline. This vaseline is important, as it reduces the length of the electric waves and makes them uniform and regular. The two smaller spheres are placed on opposite sides of the larger spheres and are but a fraction of an inch from them. The four spheres are in a straight line. The electric current passes from the battery through these spheres in order to the Ruhmkorff coil, which is connected to the last sphere, thence to the resonance plate, which is a thin, flat plate of metal from which the electric waves start, thence back again to the battery.

For long distance signalling the sending apparatus differs but little from that used for short distances. The chief difference is in the vertical wire and the height of the metallic plates. To one small brass sphere is fastened a vertical wire, at the end of which is a metallic plate, usually zinc, which acts as a resonator. The other small brass sphere is connected to the earth. No explanation can be given for this, except that it makes the apparatus work better and is proof against the dangers of lightning.

The apparatus for receiving is not so simple as the apparatus for sending. It consists of resonance plates similar to the resonance plates of the sending apparatus, to collect the electric waves, the coherer, which detects the electric waves, a battery to furnish a current,



and a Morse instrument to record the electric impulses in dots and dashes. The resonance plates are of copper, which causes the electric impulses to have a greater effect upon the coherer, thus making it possible to transmit signals through a greater distance.

The coherer is that part of the apparatus which gave Marconi the most trouble, and which is most essential to the system. Marconi uses the Branly coherer made by Prof. Lodge, but he greatly improved it. As Marconi uses it it is a small glass tube four centimeters in length and two and one-half millimeters interior diameter, closed at the ends by two closely fitting silver plugs or pole pieces, one millimeter apart. The space between the pole pieces is filled with very fine metal filings, of which ninety-six parts are nickel, four parts are silver, with a very small amount of mercury. If the proportion of silver is increased the sensitiveness of the coherer is increased, but too much silver makes it too sensitive for practical use. Again, these metal filings must not be too loose nor too compressed, else it loses its sensitiveness. Each pole piece is connected in the circuit by a short wire to a resonance plate and to a relay.

When an electric impulse or wave is sent out by the sending apparatus it strikes the copper resonator at the receiving station and passes through the wires to the coherer. This causes the filings in the coherer to become a conductor and allows the current to pass. This intermittent current is recorded by the Morse instrument in dots and dashes. By each electric impulse from without the filings in the coherer become a conductor. To destroy this conductance, so that the coherer will receive the next electric impulse, a tapper is used which continuously jars the filings, so that they are in disorder and capable of becoming a conductor in receiving the next electric impulse.

For long distance telegraphing there is but little change in the receiving apparatus. The two copper resonance plates are not used, one end of the coherer being connected to the earth and the other end to a vertical wire, about the same height as the wire of the sending apparatus. The end of this vertical wire is connected to a zinc resonance plate parallel to a resonance plate of the sending apparatus. If one end is connected to earth the apparatus works better, but here again no one

is able to explain why. The vertical wire in long distance telegraphing may be switched from a sending apparatus to a receiving apparatus. The height of the wire depends upon the distance of telegraphing, the distance being equal to the square of the mast height.

The speed of sending messages with the wireless telegraph is about fifteen words a minute. The maximum distance, so far, is thirty-five miles. Storms and electrical disturbances in the clouds have but little effect on the sending of messages. In fact, the messages seem to be transmitted better in foggy weather.

On account of its limitations the wireless telegraph in its present state of development, is not destined to supply all the needs of man in sending thought symbols, and it can never take the place of the wire telegraph, as each serves a different purpose. The wireless telegraph cannot be used in a thickly populated country, as the ether or electric waves would conflict and the result would be chaos. Fahie says: "Wireless telegraphy can only be used in lines remote from each other's disturbing influences, as in sparsely populated countries and undeveloped." It is only on the sea, along the coast and in war that the wireless telegraph, as now known, may be used without any great hindrance from outside influences.

Telegraphing between ships at sea is very valuable, especially in war, as communications may be carried on between different parts of a fleet, although they be separated by a great distance, or even by the enemy. As secrecy is desired at such times the messages may be sent in cipher. And probably in the near future the direction of the messages may be controlled by reflectors, on which Marconi is at the present time working.

If Marconi succeeds, as he hopes, the wireless telegraph will have a much more extended use and be of great benefit to man; but as it is at the present time it cannot be applied to many uses and is only supplementary to the wire telegraph. The perfection of the reflector will mean a great advancement in the utility of the wireless telegraph, as then messages may be sent in any direction desired, and the ether waves will have greater strength, because the energy of the waves sent out from the brass spheres or resonance plates will be concentrated by the reflector. It may also be possible to make the ether waves of a given length, so that they will affect only a re-

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ceiving apparatus tuned to receive that length of wave. Then when sending signals by ether waves of definite length and in a fixed direction, a certain station, and no other will be able to receive signals. The use of the reflectors and the regulated wave length may be applied to both land and sea; but its use on land is the most important. Nevertheless, on the sea, especially in war, it would be very valuable, as there would be nothing to prevent free, yet secret communication.

Under such conditions the wireless telegraph would be indispensable to man in his social and national relations. When the system is perfected and made applicable to the every day needs of men, it will be universally adopted, as it will be cheaper and more convenient in every way. It will stand as one more monument of the triumph of mind over matter.

JESSE W. MORRISON.

## TRUSTS.

Combinations under whatever name—combines, combinations, corporations, trusts or monopolies, which have for their purpose the control or regulation of prices, both to producers and consumers, are by no means of recent birth. During Elizabeth's reign, about 1600, "exclusive rights to deal in certain articles" were granted to court favorites. This was customary in the English courts. The East India, and the London and Plymouth companies are examples of one kind of trust that prevailed. Even in our own country during its first administration, Washington was accused by his enemies of favoring monopolies.

The establishment of trusts as a part of our own industrial system properly dates from the organization of the Standard Oil Company in 1882. The prosperity of this huge corporation seemed to promise success to all that should follow its example. The consequent and phenomenal multiplication of combines in different branches of industry caused great alarm among the people.

Congress, in 1886-'87 passed several laws for the purpose of restraining such companies. The ineffectiveness of these and later laws seems to indicate that the power of the people and Congress is weaker than that of trusts. The increase in their number, size and scope, despite the strongest opposition on the part of the masses, indicates their importance and power. Looking at their history and their recent rapid development we cannot fail to recognize in them something more than accidents in industrial creation, and so we naturally seek to find a cause for their existence.

Many consider the trust as a "natural out-

growth of existing social and industrial conditions;" through which business men work out the economic law of reducing expenses by buying material in large quantities, by introducing improved methods and machinery, and by securing cheaper rates of transportation. Combination, by giving monopolies power of raising prices, also prevents compulsory lowering of wages, takes away the necessity of making an article of cheaper quality to keep up competition, and may regulate the supply to demand.

Much, however, can be said against trusts. The statement that they are a "natural outgrowth of existing social and industrial conditions" is more of a condemnation of "existing social and industrial conditions" than a recommendation for trusts.

The first and greatest evil arising from the trust finds its origin in their method of organization. In the organization of a trust company the valuation is sometimes about twice the amount of capital invested. In such a case a great many of the shares "industrial stock"—usually common stock—are sold to speculators, while the preferred stock, always more desirable, is held for the most part by the large shareholders. Instead of paying six per cent. dividends on a barely adequate capital, the company pays six per cent. on the valuation, which is equivalent to twelve per cent. on the necessary amount. This money must come some way without loss to the company. If the trust has a monopoly of business it will use the power thus attained to its own ends, paying its own price to the producers of raw material, reducing the number and wages of its employes, and raising the price of the article to the consumer. Thus

as a result of over-capitalization nearly all must suffer for the enrichment of a few. It, on the other hand, the enterprise is carried on with only the normal or necessary capital, all the advantages of combination may be secured without injustice to others. Had the capitalist received his equitable portion, he could have afforded to pay higher prices to employes and producers of raw materials, and yet sold his product to the consumers for less than could a small producer.

Yet some declare that through this very greed for profit the capitalists interested in trust companies will defeat their own ends. They say that the large profits of the trusts must be re-invested; that it will probably be invested in some other business that offers a better advantage; that in this way trusts will tend to destroy each other, and the long continued trust must prove an impossibility.

Other great evils of the trust are: that large aggregations of capital have great power to influence and corrupt legislation, and that the destruction of competition carries with it the destruction of independent and individual effort. The former condition is frequently cited as the chief cause for the ineffectiveness of anti-trust legislation. In connection with the latter there are widely diverse opinions. As to the real merits of competition United States Senator Washburn, after commenting on the many opportunities of the young men of the past in comparison to opportunities of the present and future generations, in part says:

"Now the building up of trusts puts a stop to fair and equal opportunities for the young men of today. The young man just out of college has no opening, as a rule. He cannot begin business on his own account against organized capital. He must join the procession. He must content himself with being a mere clerk, and the chances are that he will never get any further, because there are so many in his class. This makes the situation a serious one, and I am sorry for the young man of today."

On the other hand it has been stated that combination logically follows competition. After one of the competitors gains ascendancy the others are absorbed. Some claim that steady competition is impossible. A stable firm cannot profit and hold its trade because of the changing firms that constantly enter in to undersell it, which having secured a

large share of the trade formerly held by the old firm, quit the business because of bankruptcy. So from this point of view combination follows the dictation of common sense. Some urge the acknowledged economic benefits of combination against competition, and point to unorganized industries, as agriculture, etc., as being poorly paid. As an enforcement of the economic benefits of combination, and, at the same time, an arraignment of the attendant social disorder, may be cited the opinion of E. F. Adams:

"The discharge of a great army of salesmen, which business consolidation has made possible, brings trouble to many a worthy family; department stores ruin many small tradesmen; but both represent distinct economic gains, which can no more be prevented, nor ought to be, than the use of machines in production."

Another evil of competition bearing on the moral phase is given, probably in an exaggerated form by John Stuart Mill:

"Morally considered its evils are obvious. It is the parent of envy, hatred and all uncharitableness, it makes everyone the natural enemy of all others who cross his path, and everyone's path is eventually liable to be crossed. Under the present system hardly anyone can gain, except by the loss and disappointment of one or many others. \* \* \* While we now gain from each other's loss, and our greatest gains come from the worst source of all—from death—the death of those who are nearest and should be dearest to us."

Be the good or the evil influences what they may, public sentiment seems to be decidedly against the trusts; yet there is by no means unanimity of opinion upon the subject. Adverse sentiment is shown by increasing prominence of anti-trust conferences and organizations, by the spirit with which anti-trust speeches are received, by the adoption of anti-trust planks in party platforms in the several States, and by attempts at anti-trust legislation. On the other hand, favor, or at least lack of condemnation, is shown by the rather large number of pro-trust articles and speeches; by the action of the Socialist Labor party, of Kentucky in declaring for public ownership of trusts, instead of declaring for anti-trust legislation, and by the conservatism of President Gompers, of the labor organization. This latter is considered to be due either to his inability to decide for or against

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trusts in relation to the advantages to laboring men, or to his fear that a declaration against trusts would result in anti-trust legislation, which because of the likeness of union of capital and union of labor might be turned against the union itself.

Anti-trust legislation is common, but, as before hinted, it is, as a rule, not effective. Congress in 1890 passed an act aimed at all combinations, in nature of monopolies, in restraint of interstate and international commerce. The industrial commission, a created, as in the cases where the trans-Missouri Freight Association and the Joint Traffic Association were suppressed for making attempts in the restraints of interstate commerce. The industrial commission, a creation of a federal law of 1898, having power chiefly in relation to interstate commerce and restraint of competition, is still carrying on its investigations and the result is not yet known.

The anti-trust laws of the several States differ widely in scope and stringency. Because of the laxity of her laws and the consequent large number of trust formations, New Jersey is known as "the hot-bed of trusts." Illinois ranks next; yet the Illinois Supreme Court recently decided against the Glucose Sugar Refining Company, formed in New Jersey. A grand jury in Chicago also brought indictments against about twenty engravers for "conspiracy to defraud and conspiracy against trade." The Michigan legislature recently passed a new anti-trust law, providing for the forfeiture of charters by corporations combining to fix prices, or regulate production, and for the taking away from foreign corporations entering into such combinations the right to do business in the State of Michigan." Of those States which have recently passed anti-trust laws, Texas and Arkansas are among the first as to point of strictness. Their laws are aimed against agreements between manufacturers, merchants, railroads, insurance companies, etc. When a company violates the laws its right to do business in the State is forfeited. The Texas laws enter more in detail as to the forms of combinations. These laws have recently been sustained by a decision of the Supreme Court.

Thus we see that in this country, and especially in some parts of it, considerable headway has been made against these giant corporations. Indeed, to such a degree is this

true that it is said that some of the most prominent men in these trusts have been contemplating moving to Canada and obtaining charters from that government, so that in doing business in the United States they could be reached only through the higher courts.

Turning from a present view of the trust situation, let us consider a few of the proposed remedies, some of which seem destined to materially alter the condition of affairs. These remedies, considered both as a means for the regulation and the destruction of trusts, are characteristic for their diversity of proposed methods.

Government ownership and control seems to find support from a large number of people. The Socialists, and the Populists, generally, are favorable to this plan. Free trade is very often proposed. This would be effective in all lines of trade in which foreign competition could enter, but might sometimes cause a larger trust in certain lines of business, by the combination of foreign and domestic companies. Other methods are official valuation to prevent over-capitalization; levying of tax on apparent value to prevent watering of stock; limiting by laws the amount of stocks and bonds, to prevent unduly large combinations; legislation preventing discriminations in transportation charges; legislation compelling uniform price, except for difference in transportation charges, etc., to prevent trusts from lowering prices in a certain community to "freeze" out competitors; publicity of all business; and Mr. Bryan's plan, which provides for the restriction of trade to the State in which the union was formed, unless license is granted to them from federal power, to carry on interstate commerce. The conditions to be agreed upon before getting license are, no watering of stock; no monopoly in any branch of business; and publicity as to all transactions and business of the corporation. If Congress has not power under the constitution to do this, then an amendment to the constitution conferring the necessary power should be passed. The "initiative and referendum," or direct legislation, is also proposed as a means for effective anti-trust legislation.

Several of these methods have been tried. Laws requiring uniformity in freight charges have been passed; and Massachusetts has laws restricting capitalization to actual value. But



the lack of uniformity of State laws makes effectual legislation very difficult, and many consequently believe that national laws are necessary.

The phenomenal increase and development of trusts in the last two years, and the disadvantages which have followed, have greatly agitated the people and strenuous effort is being made to curb their growing power. To successfully carry out this attempt many difficulties have to be overcome. These difficulties grow out of the adoption of trusts in so many lines of business; the similarity of trusts to trade unions; and the means of deception used by pro-trust workers. Another great difficulty to be surmounted is that of deciding as to what is the right method of dealing with the question, arising partly from the diversity of opinions as to the influence and standards of trusts. This diversity is shown by the fact that Prof. Hadley, of Yale, condemns the trusts and advises a development of a higher standard of morality among the men who are at the head of these combinations, as a remedy; while on the other hand, a New England minister proposes a church trust, constructed on the plan of all

trusts, whose aim should be the destruction of all weaker churches, thereby making the strong ones stronger, with a larger capacity for doing good, and so promote the cause of Christ!

With this diversity of opinion and the seeming futility of the opposition of the public, the press, and even of legislation itself, the subject assumes a serious aspect. The reform should come from within; capital should feel the moral obligation resting upon it. But such is not the condition of affairs. So far as can be seen at present the reform must be enforced from without. This can be brought about only through legislation. Legislation will never be effective until the common people have been educated in the subject to such a degree of intelligence as to enable them to thoroughly understand its complex relations, and to center upon some definite plan for action. Success may then be attained by a vigorous and united effort, caused by a feeling of necessity on the part of the people. When legislation thus represents the intelligent thought of the body politic the trust must go.

E. RAY HARTING.

### MACHINERY AN AGENT IN HUMAN PROGRESS.

Carlyle, in his "Sartor Resartus," makes us feel that man is set in the midst of almost infinite possibilities. Endowed with intelligence, stimulated by desires, with the power of converting these desires into fulfillment, man stands supreme among earthly creations.

The whole world is man's domain, but these "infinite possibilities" become positive realities only through his own strenuous efforts. At first he battled for actual existence against the wild beasts of the forests and the destructive forces of nature. Necessity soon forced him to make such tools as would lighten and make more effective his labor. As he progressed in the scale of civilization his wants became more complex in proportion and compelled a corresponding skill in the making and using of tools.

So man has advanced. Thought has gradually gained supremacy over matter and has so reduced labor that now, as Carlyle says:

"Man is a tool-using animal. \* \* \* He

can use tools, can devise tools; with these the granite mountain melts into light dust before him. He digs up black stones from the bosom of the earth and says to them, "Transport me and this luggage at the rate of five and thirty miles an hour. \* \* \* Seas are his smooth highways; winds and fire his unwearying steeds."

How many of us ever pause to look back over the past, to compare our surroundings with those of our fathers, to think, when riding in a palace car, talking over a telephone, sending a telegram, or enjoying the comforts of this "end of the century civilization" to what we are indebted for these privileges? The progress of machinery has given us all this, and to the scientist and the inventor must the honor be given. These men have subjected the powers of nature to purposes of human comfort and happiness, making this age an exceptional one in the progress of mechanics and inventions.

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In the midst of this splendor of machinery the question comes to us, "Has man's condition been made better or worse by the machine? Have the great inventors put their brains to work at the expense of their fellow-men?" This question is one that has been discussed many times. A few people seeing only local effects, and the discontent prevalent among workingmen today, have maintained that the introduction of machinery is injurious to the human race. It is the purpose of this essay to answer some of the objections set forth by those who have taken this view, and to try to show that machinery has been of inestimable benefit to mankind.

It is safe to say that the primary purpose of almost every invention connected with man's work is to turn out the same or a larger quantity with fewer workmen. When we think of the great number of inventions during the last century, as the cotton gin, spinning loom, and all the improved machinery connected with the different trades, we can readily see that there must follow a corresponding displacement of labor. In a large western agricultural establishment 600 men do the work that would require 2,145 men, working without the aid of machinery. The displacement is greatest in the spinning and weaving trades, seventy-five to one hundred times more men being required by the old system than by the new. Mr. Garmer, in the "Labor Cyclopaedia," says that in the production of flour the labor of one man now is equal to the labor of 144 men in the time of Ulysses. The same is true of all trades, though not so marked as in those mentioned above.

From this it is naturally concluded that machinery is a misfortune to the human race, by depriving man of his employment—making our army of the unemployed. If this were true machinery would indeed be a great evil, for if you take away man's work you take away the only means that the majority of men have of obtaining the necessary food products of life.

But let us pause before we pass sentence. No one can doubt that machinery has caused, also, an increased production. With an increased production there must be more workmen to put that production upon the market. Machinery has also opened up new lines of industry that employ thousands of people. The type writer, telephone, telegraph and railroad

are all results of applied mechanics. It is estimated that the railroads of our day employ in all departments 1,800,000 men and women.

Mr. C. D. Wright, Commissioner of Labor in the United States, has done away with the theory of the displacement of labor. He says that in the United States, between the years 1860 and 1890, a most prolific period in inventions, the population increased 99.16 per cent., while the number of persons engaged in all occupations increased 176.07 per cent. Between the years 1870 and 1890 the population increased 62.41 per cent., while those engaged in all occupations increased 81.8 per cent. This shows that there has been no displacement, but really an increase of labor. This increase is true for other countries as well as the United States.

It is also urged that machinery is responsible for the lack of employment among a certain class in our large cities, in that their intelligence is not up to the standard required by the manufacturer. A large proportion of this class are emigrants, who were crowded out of their own country and came here, enticed by false reports of abundance of work and money. But is the machine really responsible for their condition? Would they have been able to do skilled hand labor? No. This class can best be employed in the lower stages of labor opened up since the introduction of mechanical science. It is characteristic of this class that it can be employed by factories only in the preparation of the raw material, and not in the finishing departments. When a new machine is invented there is a demand for raw material, for iron ore from the mines and wood from the forests. These lines of work furnish employment for unskilled labor.

Again, it is claimed by those arguing against machinery that it has made our large cities, and so is partly responsible for their evils. We cannot deny that machinery has had its influence in causing the emigration from country to city that is constantly going on, though not the chief cause. It has been estimated that the average farmer of today, with average farm implements, and with the help of three men, can do the work that would require fourteen men forty years ago. These ten men, thrown out of employment in the country, seek it in the city. But there is no reason why the going of these ten men

to the city should be productive of evil if the evil was not already there. It is a well-known fact that the rural population of a country is its strength. The harm, traceable to machinery, rather lies in assisting to depopulate the country than in increasing the size of the city.

The argument has been used that machinery has produced trusts and the accumulation of wealth. There can be no doubt that many of the rich men of today have gained their riches directly through machinery, and that, should we go back to hand work, trusts would be an impossibility. To have trusts there must be a large production, and there can be no large production without machinery. But are rich men and trusts detrimental to the welfare of the people? Because a few use their wealth wrongly, should we condemn the whole? Without some rich men this country, as it is, could not exist; progress would stop, industry cease, and civilization be retarded. Rich men and trusts are beneficial to the people; first by bringing together the producer and consumer, thereby reducing the cost of the necessaries of life; second, by putting men in positions where their labor contributes more to the good of the entire community. In the olden days each family was a separate organism; today we are bound together by the common ties of division of labor.

Connected with the subject of trusts is that of the discontent prevalent among workmen today. It is human nature to be dissatisfied. This is a wise provision of nature, for if there were no dissatisfaction there would be no ambition, and consequently no progress. We would go along in the same rut day by day. Dissatisfaction being a part of human nature, it is hardly fair to say that it is due to machinery.

On the other hand, man has been bettered in every way by machinery. Let us look at it from a social point of view. Those arguing against machinery find something "poetic" in the idea of the weaver of Old England, working at his loom in his cottage, with his happy family gathered about him. Mr. C. D. Wright says that the weaver's condition was far from being "poetic;" that huddled together in his hut, without comfort, convenience, good air, good food, and without much intelligence, the weaver's family lived and worked. Drunkenness and theft made each

home a scene of crime, want, disorder and superstition. If a family tried to conduct themselves with honor they were persecuted by their neighbors.

Today the laboring man's condition is steadily being bettered. The tendency is growing toward shorter hours of toil and the time is probably coming when the eight-hour system will be in force everywhere, when, comparatively a short time since twelve and fourteen hours were considered a day's work. The natural result to the wage-earner of this shortening of his working hours is to give him leisure time in which to improve himself and his family socially, physically, mentally and morally. He has been raised, in most cases, above the mere struggle for existence into an atmosphere of "social, intellectual and moral endeavor."

The objection might be made that the shortening of the hours of labor is not due to machinery, but to legislative progress. Nevertheless, it is the increase of production caused by machinery that has made possible the shortening of hours.

By the lessened cost of commodities, caused by increased production and by decreased number of workmen on one article, the necessaries, and even comforts and luxuries of life, have been brought within the reach of the humblest household. A court gallant of Henry II's time used his sleeve in place of a handkerchief. A common linen sheet was once worth thirty-two days of ordinary labor. "Taking 1860 as the standard, the prices of 223 articles were 78 per cent. lower in 1891 than in 1860. Taking 1840 as the standard, with eighty-five articles, the difference was 37 per cent." (C. D. Wright.) In the same time wages have greatly increased. "Taking 1860 as the standard at 100, rates of wages rose from 87.7 in 1840, to 160.7 in 1891." (Mullhall.) Mr. C. D. Wright further says that "examining prices of articles on the basis of consumption, the cost of living is shown to have been between 4 and 5 per cent. less in 1891 than in 1860; and taking all prices, rents and everything into consideration, it must be concluded that living was not much, if any higher in 1891 than it was in 1840, while wages had greatly increased."

Without machinery the world could not exist with its present population. Take, for instance, the problem of supply and demand of wheat. The number of people in this country

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is increasing so fast that it is thought in a few years there will not be wheat enough to supply the demand. Without the improved farm machinery, the cultivator, the harvester, the binder and the reaper, it would be an impossibility for the farmers to now feed the millions of people. We should have been compelled to find something besides grain and vegetables for our food, or should have had to each one raise his own food.

Not only has man's social and financial status been directly raised by machinery, but he has been indirectly benefited by the increase of wealth attendant upon the advance of applied science. The natural resources of the country have been developed and increased in value many fold. The great fields of coal, iron, gold, silver, lead and copper have been brought up out of the earth and transformed into utilities. The forests have been cut down and made into articles for man's use. Each citizen shares in this increased wealth, in postal service, light houses, life saving corps, agricultural experiment stations and the like. This wealth has not by any means been distributed to every person alike; yet, whether in the hands of a few or of many, each person enjoys it to some extent free of charge, in the parks, museums and galleries, libraries and schools.

Perhaps it would be well here to correct a popular idea that is altogether wrong. Many people in their argument against the rich make the statement that if all the wealth in the country was equally divided each and every person might roll in luxury. Taking into account the contributions of the wealth of this country, the average for each wage earner in 1890 was only \$10.80 a week. The census report of 1890 showed the average weekly earnings of each employe to be \$8.25, or just \$2.25 per week less than his share. Many of those who are complaining about the unequal division of wealth are themselves receiving more than their share.

### AUTOBAIN.

Among the many inventions of the "end of the century" perhaps few have attracted more attention than the so-called "automobile." It is an invention of current interest, yet its history dates as far back as 1769. The idea of a horseless wagon was first embodied by

In the face of these facts, how can anyone deny that machinery has bettered the condition of the laboring man, socially, mentally and morally? He enjoys comforts, conveniences, better air, and better food, through the agency of machinery. Life itself has been prolonged, the average life today being 10 per cent. longer than before the era of the machine.

He not only enjoys greater physical freedom, but with his greater leisure, his bettered financial and social condition, and his facilities for education, due, in part, to applied mechanics, he is able to take his place as "a man among men" and live upon a higher plane mentally and morally. That the laborer of today is, in intellect, more than the peer of the skilled workman of old, is a fact that needs no emphasis. Machinery has really been the means of raising the intellectual standard of the working classes. Statistics show that of the four classes of wage-earners today, the proprietors, salaried men of fair income, skilled artisan and unskilled laborers, it is found that the first three classes are steadily increasing, while, in the same time, the fourth class, the unskilled laborers, is steadily decreasing. (C. D. Wright.) With the working man's improvement socially, physically and mentally, a higher standard of morals must necessarily follow.

But why restrict our discussion to the benefits derived by the wage earner? Has not the whole world profited as well? Amidst the ever-present evidences of mechanical genius today, such a question seems idle indeed. The telephone, the telegraph and the railroad have encircled the earth and brought all nations into a closer unity. The newspaper penetrates to every civilized nation. The life of man is broadened and his field for good enlarged. With his increased opportunities comes his increased duties, and it remains with him to live up to these added responsibilities.

THOS. L. PROSSER.

Cugnot, a Frenchman. His invention was a carriage propelled by steam, but being faulty in construction it proved a complete failure. This attempt, however, gave rise to another and more successful one, which was tried in England early in the present century.



These vehicles came into use as a rapid, safe and cheap means of transit, the same way as the railway system did. But English capitalists failed to understand the locomotive powers of the vehicles and their adaptability to commercial ends. The railway management used its wealth and power in urging Parliament to suppress and finally abolish the invention. This ended the first essay in the direction of horseless carriages in England. The perfection of the railway system made it seem a superfluous invention. However, the idea was occasionally revived, until in 1885, when M. Bollee at Mans, and Comte de Dion, at Paris, invented machines that were well constructed, and worked satisfactorily when steam boilers were replaced by vaporization boilers. People were interested in these machines, but no practical results followed.

The date which marks the beginning of the true history of the autobain and assures the nations of great progress in this science is 1889. The vaporization boilers caused much talk about the autobain in 1885, but the invention of the petroleum boilers gave rise to the autobains invented since 1889.

Capital was slow to take up the new invention; but in the last year the autobain manufacture has had a remarkable progress. Several years ago there were not more than thirty autobains in the world. Two years ago there were only thirty in the United States; last year, in all our leading cities companies were incorporated with a total capital of over a hundred million dollars for the purpose of manufacturing the horseless carriage. The demand is so great that the present operating companies have been obliged to refuse over one thousand orders. New organizations are continually being formed, but the demand still exceeds the supply. Indianapolis has an autobain manufacturing company that has a capital of forty million dollars. This company is trying to make the vehicles as cheap as possible.

The name which was first given to these newly-invented vehicles was "automobile," but as the name was difficult to pronounce and did not exactly express the meaning it was open to objection and the matter became subject for discussion. The Greek language gave origin to the proper name, "autobain," which completely embodies the idea. It simply means "a vehicle not drawn by animal power." The name was presented to the pub-

lic and was universally satisfactory, not only because it so well expressed its true meaning, but also because it can be made to designate the operator by suffixing the syllable "ist," which can be applied to both sexes, and still identify the vehicle. The name "autobain," may not be the best one, but one glance (for that is as much as we attempt) at the German term, "automobiletexometerdroschen," makes us thankful for our short, expressive, "autobain."

At the present time autobains are propelled by six different kinds of motive power: electricity, gas, steam, compressed air, carbonic acid gas and alcohol. The application of the first three has proven successful. Most people readily conceive how gas or steam may be used, but cannot understand how electricity can be applied, since there are no wires to carry it. In vehicles propelled by electricity the source of power is the storage battery. This is located most conveniently under the seat. In front of the seat is the controller by which the power of the current is regulated. Although the electric vehicle can only be used in places where there is a power house from which to charge the battery, yet it is the ideal machine, for it has a reserve force which can be used for traveling up inclines and over rough roads. The manipulation of all autobains is similar and the propulsion is all automatic.

From the standpoint of utility there are three classes of autobains. First, the motorcycles; second, the carriages, and third, the luggage vehicles. A description of the construction of each will give some idea of the application of the motor power.

The motorcycle is an ordinary bicycle or tricycle, compelled by a motor. The motor is attached to the back of the bicycle and electricity is generated by means of a storage battery. The operations of the simple machinery are not at all difficult to learn and do not call for much care on the part of the operator. The chief objection to the motorcycle is that it has but one seat. This can be changed by the extension of the vehicle without affecting its motive power in the least. However, if it were impossible to have two seats the cycle would not be set aside, because its cheapness and self-propelling power will produce a demand for it. The best known vehicle of this class is one of Bollee's. It is in the form of a tricycle, two wheels in front and one in the

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rear with the motor attached. The vehicle has two seats. The lighting is obtained by an incandescent tube. This autobain has made the greatest record in time of any. It traveled at the rate of sixty and one-half miles in one hour and fifty-two minutes.

The second class, the carriages, is more complex in structure. They are usually propelled by petroleum contained in several boilers. The power varies from three to six horse-power, according to the number of seats, each seat adding to the weight of the carriage and requiring a greater amount of power. Carriages containing two seats weigh about eight hundred pounds; those of four about twice as much. These carriages have a scope and power of moving similar to that of horse-drawn carriages. Although these vehicles are a means of pleasure transit, still their structure is such that they can be put to other uses without injury to the machinery.

No great difference is seen between the third class and the first and second. The luggage vehicles are stronger, as their work demands, and the motive power is invariably steam.

All the autobains are well constructed. Light weight is secured if possible, as it makes the better vehicle in respect to appearance as well as to travel. None but the best of material is used. The wheels are usually pneumatically tired, as such are best suited for rough travel. The autobain is even supplied with all details for convenience, such as bells and lamps. The rate of speed is good. The electric vehicle, at one charge travels about twenty-five miles, while those having other motive power travel as fast as fifty miles an hour.

The purpose of the autobain is to furnish a cheap, safe, delightful and rapid means of transit, and incidentally to be the indicator to the world of progress and prosperity. We should not think that autobains are made alone for pleasure; they are just as well adapted to, and probably will be used more, for business purposes. There are coaches, wagons, fire engines, and even express wagons, some of which have a load capacity of twelve hundred pounds and a speed of ten miles per hour. Still others, as the electric, weigh fifteen hundred pounds and travel five miles at one charge. The autobain is of great use and convenience to the professional man. The doctor or the lawyer, hastily summoned to a

neighboring town, finds his vehicle ready for use. No time is needed for arranging the harness on the horse and carriage, but he can just jump into his autobain, touch the lever and away he goes. Then when he returns, there is no horse to demand attention.

The autobain has come to stay and is rapidly becoming an established convenience in the business and social world of the larger cities, even in America. Its permanency is assured because of its adaptability to all kinds of work and enjoyment.

The two primary considerations in the purchase of an article are its cost, and whether its utility is commensurate with its cost. The cost of the autobain is no greater than that of other vehicles, even now; and the probability is that prices will soon decrease, since the demand increases. For the price of a team of horses and a carriage an elegant autobain can be bought. The gain to the purchaser arises from the fact that the autobain eats no food and needs no harnessing. Moreover its utility is closed to argument and its convenience is paramount.

As the autobains have pneumatically tired wheels, the noise and rattle of the thoroughfare have been reduced and less confusion is made. The space occupied by the autobains is much less than that occupied by the animal drawn vehicles. In such a large city as New York, where thousands of wagons throng the street every day, the noise and confusion that is made by the horses, and the rattling of the wagons is deafening, not to speak of the many accidents that daily occur. The use of the autobain reduces noise and accidents to a minimum.

With all these advantages some people still find fault with the autobain. They urge the liability to accident and the inconvenience if the power should run down. Certainly accidents do happen; but please to note that most of them occur in France. This is because the French are trying the rate of speed, and are not testing the durability of the machines. Their purpose now is enjoyment. All speed is put on, and in the gayety that follows the control of the motor is lost, and consequently accidents follow. But these need not create any more fear of the autobain than the everyday runaways make us determine to ride behind the horse no more. The simple operations can be manipulated by a child, and the power will be sufficient if a little forethought

be taken.

Autobains are not only constructed for level roads, but for use everywhere. Dr. Webber, of Brooklyn, New York, wished to purchase an autobain, but first wanted the durability of the vehicle tested. He ordered it from the company at Kokomo, Indiana. The managers of the company, desiring to prove its durability traveled in it the entire distance from Kokomo to Brooklyn. The roads were rough and the hills were high, but no difficulty was experienced in traversing them. The highest rate of speed was twenty miles an hour, and the distance, approximately one thousand and fifty miles, was covered in twenty days. The trip proved a most delightful and successful one. Dr. Webber at once bought the vehicle to use in his every day work.

Whether by rail or water no mode of travel is more enjoyable than that of the autobain. Surely with the advantages that the invention of the autobain has given in its short time, it will grow in power and become one of the chief means of travel, both in a social and commercial way. The cheapness, utility, durability, convenience, adaptability and pleasure that the autobain affords the rider have been minutely treated. Seated in the autobain, with your hand upon the lever, you must experience exquisite pleasure in realizing how much the mind has subjugated matter. With a sense of triumph, you feel that man has chained the elements and bent them to his will and we are lost in speculation as to what the twentieth century may bring forth.

ROSE LORCH.

### THE RELATION OF "BEN HUR" TO FACT.

"Now when Jesus was born in Bethlehem in the days of Herod, the King, behold, there came wise men from Jerusalem, saying, Where is He that was born King of the Jews? For we have seen His star in the east and have come to worship Him."

The simple quotation regarding the star and the wise men took such a hold on the imagination of Lew Wallace that, in 1875, although he was unknown in the literary world he decided to write a magazine article on his conception of the wise men. In writing this article Lew Wallace was not influenced by religious sentiment. He neither believed nor disbelieved in God and Christ. He was indifferent as to "the tomorrow of death." However, as he progressed with the article he found himself at times writing with a strange new awe. His characters became thinking, feeling, acting men, fired with faith in the new-born King and zealous to do Him honor. In perfect sympathy with their spirit, he wrote as one inspired. The manuscript was finished and laid away, as the author says, "waiting for a season of courage in which to open communication with the Harper's."

But although he laid the manuscript away, the subject refused to be thus treated. He listened to discussions which "involved such elemental points as God, Heaven, life hereafter, Jesus Christ and his divinity" which only

intensified his feeling as to the importance of the theme. In the next year he resolved to study the whole matter, "if only for the gratification there might be in having convictions of one kind or another." With this resolve came the desire to formulate his results into a book. His method of study was decided upon and the plan arranged. The manuscript already written ended with the birth of Christ. This he decided to make the first book of a volume of eight books, the last closing with the crucifixion. He then passed to the details of the story.

After careful prevision and revision of his plans, the enormity of the task revealed itself to him. The scene of action was necessarily the Holy Land, and as he had never visited that country his equipment for the work was thereby limited. He must know correctly not only the topography and geography of the country, but also its history, its people, their customs and their costumes. Such knowledge was to be obtained only from careful and laborious study of catalogues, books and maps, and from travelers. A special trip to Washington, and thence to Boston was made in search of some information as to the "mechanical arrangement of the oars in a trireme." and no pains were spared to gain definite and certain knowledge upon all points concerned. With this material collected from

many sources, he has a story so accurate, that actual scenes of his story found no occasion to

Not only is Lew Wallace graphical and topographical story, but equally true. Founded on facts of mankind, it deals with sonages. The character stand for firm realities in harmony with the sater reading the title, of the Christ," have that the Savior appear the book. But this the great art of the author made Christ a more personality would have other characters of the in the story would have he uses the facts for w the basis for the narra and His cause move sil of illuminated backgro actual drama just offer ity to it all.

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many sources, he has succeeded in making his story so accurate, that upon visiting the actual scenes of his story some years later, he found no occasion to make any change.

Not only is Lew Wallace true to the geographical and topographical setting of his story, but equally true to the historical. Founded on facts of universal interest to mankind, it deals with actual events and personages. The characters, real and imaginary, stand for firm realities and think, feel and act in harmony with the spirit of the age. Many after reading the title, "Ben Hur, a Tale of the Christ," have been disappointed that the Savior appears so seldom in the book. But this very fact shows the great art of the author. Had Lew Wallace made Christ a more prominent figure, His personality would have so overshadowed the other characters of the study that interest in the story would have been lost. As it is, he uses the facts for which Christ stands as the basis for the narrative, while the Master and His cause move silently along as a kind of illuminated background, coming into the actual drama just often enough to give reality to it all.

Everywhere throughout the book are the corrupt condition of the world and the need of a moral revolution implied. Probably no one incident so well portrays the existing cruelty, the lack of legal justice and morality, as the imprisonment of Ben Hur's mother and sister in the Tower of Antonio. The low ideals of human conduct that prevailed are brought out by the lack of honor in Messala, the sensuality of Iras, the revolting debauchery of the scene in the Garden of Daphne, the Bacchanalian feast in the saloon of the palace, and the scene in the palace of Idernee.

But amidst all this darkness burns one tiny ray of light, the hope in the promised Messiah. The conversations of Simonides, Ilderim and Balthazar show the diversity of opinion as to what the Messiah would be. While Ilderim and Simonides were not of the same race, their religious convictions were fundamentally the same. Both believed in God, and both had faith in the coming of a Messiah. With them He was to be the earthly King of the Jews. Their idea was that "there must be a leader in every community, clothed with power, else there's no reform;" so Christ must come to establish an earthly kingdom, Himself a king, like Herod,

but "better and far more magnificent." Of the widely different ideas regarding the Messiah Balthazar's is the one held by a few of the most thoughtful men of his time, and the one that best harmonizes with our own conception of Christ's mission. In Balthazar we see a deep regard for the masses, and a holy indignation against the corruption of the age. The following speeches show more plainly and more directly than aught else the corruption of the age, the need of a spiritual reform, and the real field of the Messiah's work:

"That which drove me at last into the solitude where the Spirit found me, was the fallen condition of men, occasioned, as I believed by loss of the knowledge of God."

Another:

"The redemption was the work for which the Child was born."

Again:

"I tell you, though it be but the saying of blind to blind, he that comes is to be a Saviour of souls; and the redemption means God once more on earth, and righteousness, that His stay may be tolerable to Himself."

In this he shows that among the most learned men of the time Christ's kingdom was recognized as a kingdom of spirit, and the reforms that He would work, reforms eternal in their results:

He says:

"There is a kingdom on the earth, though it is not of it, a kingdom of wider bounds than the earth—wider than the sea and the earth, though they were rolled together as the finest gold and spread by the beating of hammers. Its existence is a fact as our own hearts are facts, and we journey through it from birth to death without seeing it; nor shall anyone see it until he hath first known his own soul; for the kingdom is not for him, but for his soul. And in its dominion there is glory, such as hath not entered imagination—original, incomparable, impossible of increase."

Throughout the book are given vivid pictures of the life of the time. The scene at the Joppa Gate and the scene at the inn are valuable contributions to history. The intolerant spirit of Rome toward the Jews, which becomes the impelling force of the action of the story, is true to the spirit of the age. This "light motif" is struck in a masterly way in the opening conversation between Judah, Ben Hur and Messala. Messala



had just returned from Rome, where he had spent the past five years, and Ben Hur, his boyhood's friend and playmate, had come to welcome him home. While away Messala had learned to use, with telling effect, the satire then in vogue among the Romans. His cold, supercilious manner chilled the warm heart of Ben Hur and made him conscious that their old relations might never be re-established. With his newly-acquired art, Messala began to sneer at all that Ben Hur held sacred, and to taunt him thus:

"What is it to be a Jew? All men and things, even heaven and earth change; but a Jew never. To him there is no backward, no forward; he is what his ancestor was in the beginning."

He continued to sneer at their religion, literature, art, painting and sculpture; then said, in his haughty manner;

"In war, all you conquer in the six days you lose on the seventh."

And, lastly, with all his pride of spirit in the superiority of his race:

"I am to be a soldier, and you, O my Judah, I pity you; what can you be?"

What could have been more irritating to Ben Hur than to have his race thus made an object of bitter insult and scorn; and what more unbearable than the speeches of Messala in contempt of the Jews, their customs, and "much pent round of life?"

After this conversation when Valerius Gratus, the Roman governor, was being escorted through the streets of Jerusalem in state, Ben Hur, with his sister, ascended to the roof to watch the procession. Judah accidentally dislodged a tile, which in falling seriously injured the governor. Judah was at once accused of intended murder and condemned to the galleys for life. His estate was confiscated. He disdained to ask help for himself, but appealed to his erstwhile friend, Messala, on behalf of his mother and sister, only to hear his contemptuous reply to the Roman officer:

"I cannot be of further use to you. There is richer entertainment in the street. Down, Eros, up Mars. (Love is nothing, war everything.)"

In all this our sense of justice is strongly appealed to; our sympathies are enlisted for the Jew and arrayed against the Roman. But these conditions are not created to merely add force and awaken interest in the story. They

are verified by the historian. Morrison, in speaking of the position of the Jew in society at the beginning of the Christian era, says,

"The Jews continued to be looked upon with contempt by the educated world of Greece and Rome. The claim of the race to an honorable and remote antiquity was treated with ridicule. Instead of being the teachers of Plato and the Greek philosophers, they were nothing but descendants of the dregs of the Egyptian populace."

With keen touch and great definiteness does Lew Wallace mark the comparison and contrast between Jewish and Roman character. Messala, a Roman, and Ben Hur, a Jew, are taken as types of their respective races. Judah, Ben Hur, was a quiet, modest young lad, extremely religious, with a deep, philosophical and poetic nature; the head of a rich, noble family living in Jerusalem, with his widowed mother and little sister, to whom he was devotedly attached; proud of his ancestry, a race whose laws, modes and habits of thought held to high, stern ideals and forbade satire and humor. Full of generous impulses, yet with untiring vigor he pursued vengeance against those who had wronged him. In him the Jewish virtues are well marked, the tender love for mother and sister, the appreciation of the ideal home life, and the pride in his ancestry and religion. These three things deepened and strengthened his desire for revenge, which played so important a part in his later life. This also is a characteristic of the race. Simonides himself says:

"Revenge is a Jew's by right; it is the law."

On the other hand is Messala, a Roman, proud of his wealth and of Rome; bent on conquest and ambitious in sustaining Rome's national supremacy; insolent, cynical, haughty and egotistical, and intolerant, despising the Jew with the most bitter hatred, seeking to gain personal triumph over Ben Hur.

Not only is the nobility of the Jewish character brought out by contrast with Messala, but in the midst of sorrow and tribulation Ben Hur's mother stands a pure, high type of a Jewish matron. Beautiful and refined, she was a true, devoted and tender mother, to whom the word "home" meant something ideal. A woman of great intelligence, well versed in the educational, religious and political affairs of not only her own race, but of



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the Romans as well, she instructed her chil-  
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 ligious. When it was discovered that leprosy  
 had taken hold of Tirzah's life, "the mother  
 sat awhile speechless, motionless, paralyzed of  
 soul, and capable of but one thought—leprosy,  
 leprosy! \* \* \* When she began to think,  
 mother-like, it was not of herself, but her  
 child, and, mother-like, her natural tender-  
 ness turned to courage. \* \* \* She buried her  
 knowledge in her heart; hopeless herself, she  
 redoubled her devotion to Tirzah, and with  
 wonderful ingenuity—wonderful chiefly in its  
 very inexhaustibility—continued to keep the  
 daughter ignorant of what they were beset  
 with. \* \* \* On her own wasting lips the  
 psalms of the singing king of their race served  
 to bring soothing of forgetfulness and keep  
 alive in them both the recollection of the God  
 who would seem to have abandoned them—  
 the world not more lightly or utterly."

When she, with Tirzah, wanders to their  
 old home and finds upon the door step her  
 son, Judah, Ben Hur, asleep, she is almost  
 overpowered by the great rush of feeling, but  
 so masters herself that she will not let Tir-  
 zah kiss his hand: "Not for restoration to  
 health and fortune, not for any blessing of  
 life, not for life itself would she have left  
 her leprous kiss upon his cheek! Yet, touch  
 him she must; in that instant of finding him

she must renounce him forever. How bitter,  
 bitter hard it was, let some other mother  
 say! She knelt down, and crawling to his  
 feet touched the sole of one of his sandals  
 with her lips, yellow though it was with the  
 dust of the street, and touched it again and  
 again; and her very soul was in the kisses."

The sweet simplicity of the Jewish maiden,  
 Esther, is enhanced by contrast with the cle-  
 ver intrigue of the cruel, deceptive sensual  
 Iras. Esther remained pure and tender in her  
 devotion to her father; Iras, hard-hearted and  
 shrewd disregarded the wisdom and the love  
 of the venerable Balthazar, even making a  
 jest of his religion. The contrast is still  
 farther brought out in their relations to Mes-  
 sala, and the ethical farce of it all is sug-  
 gested in the last chapter. Esther, with her  
 sweet, womanly dignity, is a happy mother,  
 and a contented wife. "Beautiful with the  
 outshining of a devoted nature, a woman to be  
 loved because loving was a habit with her."  
 Iras still retained some of her grace, but her  
 whole appearance was tainted by her evil life.  
 Her face was coarse and all color had faded  
 from her cheeks. Her lips were "cynical and  
 hard," her attire "ill-chosen." Retribution had  
 paid her in her own kind; Messala had been  
 her Nemesis; "she had found that to be a  
 Roman was to be a brute."

BESSIE BERTSCHE.

## A COMPARATIVE STUDY OF THE TISSUES OF THE BEGONIA.

The young student of any of the natural  
 sciences is perplexed by the countless phenom-  
 ena of nature. At every step hidden truths  
 are revealed to him which he had daily passed  
 without a thought. He is confronted by prob-  
 lems, each of which would require years of  
 patient study for its solution. If he would ob-  
 tain satisfactory results he must be content  
 to take one of these problems and give it  
 thorough study.

One of the most interesting and valuable  
 among the many divisions of natural science  
 is the study of plants, or botany. The plant  
 kingdom consists of countless families which  
 cover the surface of the earth to such an ex-  
 tent that a spot without plants is remarkable.

The different plants composing the vegeta-  
 ble kingdom that have the same environment  
 are found growing in groups, as the forest

in one place, the plants of the prairie in an-  
 other, and those of the swamps still in an-  
 other. These groups are known as societies,  
 because they have adapted themselves to a  
 special environment.

The number and differentiation of organs  
 that are developed in a plant are dependent  
 upon its surroundings. It is not a simple  
 problem for a plant to adjust itself to these  
 outside relations. In general we can say that  
 the chief controlling agents of all plant life  
 are light, temperature and moisture. Varia-  
 tion in the proportion of these agents brings  
 variation in external appearance. Variation  
 in appearance sometimes means important  
 structural differences.

Noticing that the plants of the Begonia  
 family, though alike fundamentally, were  
 very unlike in minor characteristics, I was cu-

TABLE No. 1.

Plant.	General Appearances.		Microscopic.		Summary.
	Stem.	Leaf.	Stem.	Leaf.	
1	Erect 1½ ft. high, many jointed, polished surface.	Petioles short, oval shape, medium size, and smooth and polished surfaces.	Bundles arranged in a circular band, walls of epidermal cells not heavy, no outgrowths of epidermal cells.	Epidermis polygonal-shaped cells, stomata on lower surface, no trichomes.	<b>No. 1.</b> Absence of trichomes, the weak stem, and circular arrangement of bundles are evident characteristics.
2	Procumbent massy stem, numerous, colored trichomes.	Leaf oval in shape, very large and thick, trichomes on lower and upper surface, polished.	Bundles not connected by a band, but forming an irregular circle, walls of epid. not specially heavy, many trichomes.	Same as No. 1 in epidermis, stomata and trichomes on lower surface	<b>No. 2.</b> Presence of red trichomes on stem and lower epidermis, procumbent stem and arrangement of bundles are characteristics.
3	Erect, very stiff, long leaf petioles, many trichomes.	Oval, much like No. 2 in shape, trichomes on lower surface, upper polished.	Bundles scattered near center, epidermal cell walls thin, trichomes as in No. 2.	Polygonal-shap'd cells, thick walls stomata and trichomes on lower surface.	<b>No. 3.</b> Numerous trichomes on stem and lower epidermis, stiff, erect stem, and scattered bundles are characteristics.
4	Erect, massy, woody, trichomes	Numerous trichomes on upper surface of leaf.	Bundles arranged in circular band, collenchyma found, walls of epidermal cells thickened, trichomes.	Polygonal-shap'd cells, stomata on lower surface, and trichomes on both.	<b>No. 4.</b> Presence of numerous trichomes on stem and on both surfaces of leaf, woody stem and arrangement of bundles, are characteristics

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## Summary.

No. 1. Absence of trichomes, the weak stem, and circular arrangement of bundles are evident characteristics.

No. 2. Presence of red trichomes on stem and lower epidermis, procumbent stem and arrangement of bundles are characteristics.

No. 3. Numerous trichomes on stem and lower epidermis, stiff, erect stem, and scattered bundles are characteristics.

No. 4. Presence of numerous trichomes on stem and on both surfaces of leaf, woody stem and arrangement of bundles, are characteristics.

rious to learn what their minute structural difference and likenesses might be. Four varieties of Begonia were selected for comparative study. The gross characteristics of the plants are sufficient to show that they all belong to the same family, but not to the same species.

The stem of plant No. 1 is of the erect type, and has a smooth, polished surface, with enlargements at the nodes, where the leaf petiole joins the stem. There are no hair-like trichomes upon the stem, but at the joints there are scale leaves. The tallest stem of this plant measures one and a half feet, while the leaf petioles are short. Their average length near the ground is two inches, and this decreases gradually toward the top of the stem, until they are so short that they can scarcely be called petioles. They are arranged in two vertical rows, thus allowing a large space for the leaf to spread out in width, without shading those below. Thus light relations are aided by the arrangement of the leaves. The leaf of this plant is approximately round, the average length being two and a quarter inches, and the width two and a half. In each leaf veins are arranged palmately, and the degree of divergence between the veins is small.

Plant No. 2 has a procumbent stem and the veins are arranged so as to form a mosaic. The stem and the veins of the under side of the leaves of this variety of Begonia are covered with hair-like trichomes. The petioles branch out from three sides of the short, massy stem, but they usually bend around the stem until a vertical position is taken. The petioles arising from the top side of the stem are much shorter than those which come from the lateral surfaces. The former are about three inches in length and the latter about five. The leaf of this plant is oval in shape, the average width being five inches and the length three. It is palmately veined. The upper surface is very smooth and polished and of a dark green color, while the under side is rough with trichomes and is of a deep red color.

The stem of plant No. 3 is heavy and of the erect type, though it is only about eight inches in length. The outward appearance of the plant allies it closely with No. 2, which is different in having a procumbent stem. The long petioles on the erect stem allow the leaves great freedom in adjusting

themselves to the light. This plant seems to need a great amount of light, because the surfaces of the leaves all appear turned at right angles to the rays of light. Upon the surface of the stem and also on the under side of the leaf are many hair-like trichomes. The scales are large at the joints of the stem. The leaf of this plant is large, with a nearly circular outline, being, on an average, of five inches in length and three in width. It is palmately veined. The upper surface appears similar to that of No. 2, but the under side of this leaf is a light green, while that of No. 2 is red.

The stem of plant No. 4 is an erect type, though it is massy. The petioles of medium length on this type of stem, give the leaves an excellent position for light.

In the microscopic study of the stem the following facts were noted. (1.) The structure of the bundles place the plants in the Dicotyledon series. (2.) A marked difference in the arrangement of the bundles in the different plants, and (3), the ground and epidermal tissues are different in some cases. In plant No. 1 the bundles are arranged in a circular order near the outer surface of the stem. These bundles are joined together by a circular band of cells, which have very thick walls. The parenchyma is composed of large polygonal shaped cells. The epidermis of the stem is composed of polygonal shaped cells, with walls of medium thickness and no trichomes. The bundles of plant No. 2 are distributed in an irregular circle near the surface of the stem, with four bundles forming a line through the center. No band joins these bundles. The epidermal cells are polygonal shaped and are more nearly equilateral than those of No. 1. Merging from these cells are numerous red trichomes, which are absent from the stem of No. 1. The fibro-vascular bundles of the stem of plant No. 3 are not so numerous as in Nos. 1 and 2, are longer and found scattered through the center. The parenchyma is composed of polygonal shaped cells. The epidermis is composed of polygonal shaped cells, with scale-like trichomes, but without the coloring material present in No. 2. The fibro-vascular bundles of No. 4 are arranged in a clearly defined circle connected by a circular band of cells. The epidermal cells are polygonal shaped and the walls are of medium thickness. There are many trichomes present.

The epidermis from the upper side of the leaf of No. 1, is a thin, delicate, transparent tissue, destitute of chlorophyll. The cells are of polygonal shape and there are no stomata present. The cells of the lower epidermis are more irregular and contain many stomata. No trichomes are found on either surface of the leaf. The cells of the epidermis of No. 2 are similar in shape to those of No. 1. The upper epidermis contains no stomata or trichomes but the lower epidermis contains both. The trichomes are especially numerous along the veins. The epidermal cells of No. 3 are of polygonal shape, with thickened walls, with both trichomes and stomata connected with the cells of the lower epidermis. In shape and the presence of stomata the cells of the epidermis of No. 4 are like those of No. 2 and 3, but trichomes grow from the cells of both the upper and lower epidermis. (See table.)

It is evident from the comparison of the general appearance and minute structure of

the plants that the differences in minor characteristics account for the different varieties. These differences in varieties depend upon the difference in thickness of walls and shape of the parenchyma cells, the arrangement of the fibro-vascular bundles, and the differentiation in the epidermis. The difference in the arrangement of the bundles cause differences in size and flexibility of stem. In the firmer stem the walls of the parenchyma cells are thickened. The trichomes are the outgrowths of the epidermal tissue, the presence of the trichomes on the under surface of the leaves of Nos. 2 and 3 make them quite different in appearance from No. 1, which has no trichomes. The addition of trichomes on the upper surface of No. 4 make it quite different in appearance from either No. 2 or 3. These facts show that the most important of all these superficial characteristics affecting external appearances is the difference found in the epidermal tissue.

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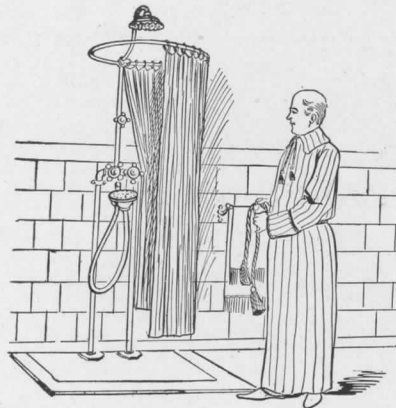


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