The Spectrum.

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THE INDUSTRIAL REVOLUTION.

"If there is any one period one would desire to be born in, is it not," asks Emerson, "the Age of Revolution; when the old and the new stand side by side and admit of being compared; when the energies of all men are searched by fear and by hope; when the historic glories of the old can be compensated by the rich possibilities of the new era?" Whether or not we share the sentiment thus expressed, it is, nevertheless, an undeniable fact that we, of this generation, are living in an Age of Revolution. Nothing seems steadfast or absolutely established. All is flux, movement, development. Trade is restless in the grasp of monopoly, while commerce is burdened with limitations. Notwithstanding the fact that the past with its sluggishness and superstition is gone, with the rapid advance of the past century new problems and possibilities have arisen. The great throbbing heart of civilization is aware of grave responsibilities and vast uncertainties.

But however restless may be the present era, however great the turmoil and the confusion, the fact remains that this is, nevertheless, an age of marvelous material development and astounding enterprise. Contrast, if you will, present conditions with those of the past. What a startling revolution. Were we to take away the rewards of nineteenth century inventive genius our civilization would be almost totally destroyed. But, you ask, has, then, human achievement reached its zenith? I answer that, though the future alone can determine, the great movements which characterize the nineteenth century certainly suggest not completeness nor finality but mere beginnings. Apparently the twentieth century is the beginning of a new era for which the nineteenth century was, after all, but a splendid preparation; an overture, suggesting the mightier harmonies to come.

Before considering the rich possibilities of the new era it might be well to cast a backward glance along the industrial highway over which the race has painfully and laboriously pressed onward. As we look back along this well trodden highway a few great milestones mark the principal epochs of the industrial advance. Thus slavery is, perhaps, the first important milestone. Slavery marked an advance from that period in which all captives taken in war were put to death. And yet so revolting an evil as this slave institution surely was, wherein there was no happiness and no hope, could not long endure. So from slavery there evolved a less harsh system of labor which was termed feudalism. Feudalism was characterized by the reign of the noblemen

on the one hand and the semi-official slavery of the serfs on the other. In time, however, the Crusades, through the quickening of the general intelligence of Europe and the demoralization of the nobility, accomplished the overthrow of feudalism.

A result similar to that effected by the Crusades upon the continent was effected by the "Wars of the Roses" in England. These wars between the houses of Lancaster and York might be likened to two huge millstones between which English aristocracy was literally ground to powder. Just as a house divided against itself cannot stand, so the English nobility, undermined by internal dissentions, was compelled to yield its place to the industrial class; and it was this accession of the middle class to power that marked the dawn of a brilliant industrial era in English history.

At the time of the downfall of the aristocracy the only agents of production were the peasant and his tiny cottage factory, wherein there was but a simple division of labor among the members of his own household. The peasant tilled the soil and raised that which was needed to sustain life, while his wife and children supplied the other necessities of the family, such as the clothing. This method of production, however, was destined soon to be radically changed; for it was discovered that each man could perform a certain specific portion of labor better than he could perform many different duties; so there evolved from the former industrial condition a condition of labor, wherein each man turned out his own product, and, after retaining that portion needed by himself, he exchanged the remainder with his neighbor for the commodities which his neighbor produced. Thus originated exchange and the inter-dependence of men upon each other; and these circumstances soon neccessitated the formation of money values and a monetary system.

All these circumstances, however, were but intermediate stages in the development of industry, in as much as the use of inventions, which came later, carried the division of labor to that extreme which we find today. From the time of this original division of labor to the present day there has been at work an economic evolution, possibly not very manifest at times, but nevertheless at work silently every day. About the year seventeen hundred and sixty the application of science to nature in the form of inventions began to make itself felt and to become a dominant factor in the world's industrial progress. One of the largest industries of that time, the cotton manufacture, which was carried on principally in Lancashire, England, was naturally one of the first whose method of production was to be changed through the medium of inventions. In the year seventeen hundred and sixty the first important invention in this manufacture, the fly-shuttle, was designed. Soon after this the Hargreaves perfected the spinning jenny, which invention occasioned the people of that time good opportunity for studying the question of the unemployed. For a number of those who, through inventions, had been deprived of work broke into the Hargreave workshop and totally destroyed the newly invented piece of mechanism. Indeed, a little later hundreds of desperate hand-workmen all over Lancashire rose in revolt against these new agents of production, which had deprived them of the means of support, and, scouring the country, destroyed every machine they could lay hands on. But determined not to be thus thwarted, the inventors, undismayed, set to work with increasing enthusiasm, so that the years immediately following saw perfected even more vital improvements in the mode of production. Among

these inventions was the spinning frame of Arkwright, the mule jenny, contrived by Bolton in 1775, and the invention by Cartwright in 1787 of power loom weaving. So here within a period of less than forty years had been invented machines, which not only wrought marvelous changes in the method of production, but enormously increased the output of goods. Petty as these improvements in cotton manufacture seem to us today, when one man can superintend two thousand spindles and fifty thousand spindles, under modern circumstances, can turn out in the time as much cotton cloth as did all of Lancashire; when, indeed, twenty-five men can, with our modern mechanism, produce as much cloth as did all of old Lancashire with its six hundred thousand inhabitant—these early inventions are, nevertheless, interesting and noteworthy, because they form the starting point for our present enormous industrial development.

This is but one example of the thousands upon thousands of improvements, which, for the past century, have been working out this industrial revolution; a revolution not only in a few industries but in every industry; affecting not merely one nation but all nations. Just as every transaction, every great social struggle, all warfare, is followed by momentous results, so was this economic transition succeeded by vital and far reaching results. The results of this transition as affecting the workmen, in his transformation from a pure craftsman to a machine minder, and also the wonderful rate of his displacement by machinery, are indeed significant. But there are still results other than those which so vitally affected the workman. In the fierce competitive struggle which followed the subjection of the mighty forces of nature to human control only the best equipped employers were able to survive. It was truly a survival of the fittest. But, since the invention of machinery has always tended towards the creation of a class of monopolies, the principle of competition no longer holds sway in the industrial world. That regime, during the existence of which the toilers were plunged to the deepest degradation imaginable, with its overproduction, its ruinous methods, its wastefulness of human effort, and its relentless business warfare is fast disappearing. The competitive system, once considered so all important, is becoming obsolete; is, indeed, gradually becoming supplanted by a new principle, that of combination. Industrial combination is the watchword of the twentieth century.

No longer is the world to be agitated by the tramp of marshaled hosts, or the assembling of battleships. It is the available money supply, concentrated in the hands of the few, which at the present time excites and moves the world. These few might almost be counted upon the fingers of one hand. They are the Caesars and the Napoleons of modern industrial strife. Thus one of the most powerful, if not the most powerful combination which the world has ever seen —greater even than the triumvirates of old Roman history—is that formed by the Rothschilds, J. P. Morgan, Rockefeller, and Andrew Carnegie. The power of these men, backed by their combined interests, aggregating three billions, four millions of dollars, is supreme. In truth these capitalists are today the real masters of the earth. The capitalist's control of executive, judicial, and especially legislative departments of government, upon the favorableness of which towards combination depends the stability of his enterprises in indeed startling. The shrewdest politicians respond to the call of the capitalist; the keenest and ablest lawyers of the twentieth century await his summons; legis-

lative bodies are entirely under his control, while kings and princes are but the instruments for carrying out the demands of this mighty aristocracy. How long will this money power whose surplus is increasing by millions every year, permit rulers to exist who are, in reality, rulers only in name? As the giants of Wall Street are, indeed, the real rulers of this nation, how imperceptible would be the transition from a republic to a monarchy.

These, therefore, are the industrial conditions which the greatest of all the centuries has given to the nations of the world. History proves that great national transformations, through ages of continuous development, when once instituted, are finally consummated with wonderful rapidity; their momentum is proportioned to their vastness, not limited by it. Such is the present economic transformation. So rapid has been its movement, so sudden its culmination, that the world's statesmen are puzzled, they know not which way to turn; face to face with a problem of which the past shows no equal, they realize that old methods are entirely inadequate, that new ones may be disastrous.

Just as the mighty iceberg, borne southward from the frozen north by the ocean currents, on coming in contact with warmer waters finally becomes unstable and churns the sea to yeast for miles around, so the present individual and social system, undermined by the inhuman practices and evils of the very system itself, is today agitating the nations of the world with the violent convulsions which presage its own ultimate transformation. We are in the throes of a universal crisis. Let us hope that our efforts put forth in this day of transition and change may be such as to hasten the dawn of that better day, which Tennyson, amid the industrial strain and stress of his century, foresaw—that day

"When wealth no more shall rest in mounded heaps,
But smit with freer light shall slowly melt
In many streams to fatten lower lands,
And light shall spread, and man be liker man
Through all the seasons of the Golden Year!"

BEAVER W. DAY.

KNOWEST THOU WHAT 'TIS TO LOVE.

(Translated from the Swedish.)

Knowest thou what 'tis to love?
I will tell the secret dearest,
As over me it cast its thrall,
In a daydream hour when round me
All was light and peace and quiet.
To love it is to carry burdens
For the weary, for the weakling;
Toil upon the sunbathed desert
When neath shadows thou couldst rest;
To forget your own dark trouble
And rejoice with who hath joy;
To pluck roses for the many
Whom life's burdens deeply bow;
To tell stories blithe for children;
Sing away the melancholy
Of the mortal racked with pain;
Winters wake with hope of springtide;
Ardent prayers for all that suffer,
Smiles for all the bright and good;
Faith for all that's great and noble,
Hope where all is in despair;
When at last life's eve is nigh,
To the grave, forgot and nameless;
This, my dearest, is to love,
Love of all on earth the greatest.

ORPHEUS.

A VOYAGE TO THE GOLD FIELDS.

Gold has played an important, if not the important part in the world's drama. For it, men have fought their way to the leadership of empires and in exchange for gold human beings have descended into the lowest depths of hell. The glimmer of gold has bridged oceans, scaled the highest mountains, melted icebergs and explored the most forbidding of unknown lands.

No wonder, then, that men should be drawn toward the North Star when the riches of Alaska were brought to light. In the fall of '97 there arrived in the harbor of Seattle the treasure ship "Roanoke." She brought down a crowd of bearded and grizzled miners, who through the long winter of '96 and '97 had taken gold in almost limitless quantities out of the gravel beds at the headwaters of the Yukon River. The agonies which these men had endured in their burning desire for wealth were forgotten when they arrived within the confines of civilization and were there given all the luxuries which money alone can procure. The tales of wealth related by these men grew like the story of the "Three Black Crows." The result was that with the opening of navigation in the spring of '98 there was a stampede into the Klondike, the like of which has not been equalled in this generation. The British Lion, ever anxious to extend the benificence of her sway, succeeded in stretching the boundary line and encircling this rich territory with her rule.

These riches thus being roped in by our cousins across the sea, we, as Americans, not to be outdone, found it necessary to make a new "strike." In the northwestern part of Alaska, one hundred miles from the mouth of the Yukon River, is situated Cape Nome. Here, late in the fall '98 and in the summer of '99, was made perhaps the most famous of all gold strikes. The tales of wealth brought to our shores that fall far exceeded the most extraordinary ones which had been brought in the previous years from the Klondike region. These tales were largely verified by the creaking dray loads of gold dust drawn from the wharves up to the U. S. Assay Office at Seattle. A new field was thus opened to those who had been disappointed in the Klondike. Others throughout the United States having had a mild attack of the gold fever were now seized with it in its most violent and extreme form.

Who would have thought that this "fever" would penetrate to the quiet and peaceful life of a North Dakota farm? Such, however, was the case. I, who had never been away from home, except six months at the North Dakota Agricultural College, thought that I could see a fortune glistening in those far away beach sands. There were several other misguided spirits from the same vicinity who had similar visions. So on the 15th of May, 1900, we boarded the "North Coast Limited" for Seattle.

Twodays later, about midnight, we arrived at that place. Our first lookout was to secure lodgings. This was found to be a very difficult matter. After tramping up and down the hills with which Seattle abounds, we found a room where thirteen of us were allowed to sleep on the floor. Every hotel and lodging house was crowded to its utmost capacity. This city being the great point of mobilization for the thousands who in a few days would embark for the golden shores of Nome. The next day was spent securing transportation. It was almost impossible to obtain tickets.

At last we secured "steerage" tickets on the S. S. Senator for $100.00 per head. The streets and wharves were lined with quacks selling mining machinery and supplies of every description.

Six p. m., May 20th, found us all on board and the Senator ready to leave port. This ship was one of the first of the fleet to leave for Nome, so there was a tremendous crowd of men and women lining the docks to get what might perhaps be a last view of the gold-seekers. Many of the passengers had relatives and friends in the city who were on deck to bid farewell and give their best wishes for a prosperous journey. Some of the leave-takings were very touching—wives bidding farewell to husbands, fond sisters to brothers, mothers to sons and lovers to their sweethearts. Who wonders that their hands linger? It is well known that in such a large crowd there are those who will not return. Those going away realize that some familiar faces will be missing on their coming home. The last bell rings and the gang-plank is drawn in. Slowly the ship turns around and heads for the deep waters. The vast crowd on the now fast receding landing is still cheering, and waving and fluttering handkerchiefs.

The many lighthouses which gleam on Puget Sound for the purpose of warning the mariner of shallow waters, were about all that could be seen through the approaching darkness. The evening was spent making that resolution which everyone going to sea for the first time makes; that of not getting seasick. At a late hour we retired to our quarters in the steerage. We had selected top bunks so as not to be the recipients of those fits of generosity which often overcome even the most selfish when at sea.

On being awakened the next morning, by the ringing of the berakfast gong, I was very much elated to find that the much dreaded monster had not taken possession of me, while all around were people who had already met their Waterloo. By the motions of the ship it was evident that we had rounded Cape Flattery and entered the fathomless waters of the Pacific. While at the wash stand preparatory to taking a morning wash, the ship made an extraordinary dip, dropping straight downward so quickly that it was almost impossible to keep up with it. My doom was sealed. A couple of days, however, cured the sickness and I was able to adjust myself to the movements of the ship.

We found ourselves mingling with very congenial companions. When men are thrown together on a journey like this, of unknown duration, they leave behind them the inequalities which would prevent them from associating with each other when on land. Here on board ship they share common interests and are subject to common dangers. When it storms the man with a million is shaken as much as is his companion to whom fortune has been less generous. Here were men of all nationalities and all activities. Those who interested us most, however, were the old miners who had taken gold from the four corners of the globe. Old men there were who had followed mining since the early '49's when they had fought their way across the trackless plains to California. They were now making one last effort to overcome the obstacle of nature and take from the resisting earth the fortune which the miner always sees coming on the morrow.

Eight days on the trackless ocean and the Aleutian Islands were due. Eyes and glasses were strained in the effort to be the first one to announce the approach of land. It was the intention of Captain Patterson to put in at Dutch Harbor to secure a fresh supply of coal and to learn, if possible, from the U. S. revenue cutters any news of the condi-

tion of the ice in Behring Sea. However, on nearing this peninsula and group of islands, which separate the Pacific Ocean and Behring Sea, we encounter the usual fogs and winds. Twice when the fog lifted, the ship was so close to the rocks that it was almost possible to stand on the deck and touch them with your hand. At the earnest solicitation of the passengers and his own anxiety to be the first to drop anchor at Nome, the skipper abandoned the idea of stopping at Dutch Harbor and proceeded into Behring Sea, heading directly for the gold fields.

Shortly after losing sight of this group of islands an incident occurred which marred slightly the pleasure of the voyage. An old miner, who had taken passage at San Francisco and who had been ailing ever since we had left port, was now stricken with pneumonia and died before many hours. Preparations were made to bury him at sea. This old body which for seventy years had been tossed about in the struggles of life, was now to be tossed about by the restless elements of the sea. Just before the burial hour, it was discovered that the old man had belonged to the secret society of Masons. Immediately the Masons on board held a meeting. They determined that the body should not be buried at sea. An undertaker was found among the passengers and his services were engaged to embalm the body. A subscription was made up to have the body shipped back to wife and friends in California.

For three hundred miles northward into the Behring Sea, nothing was encountered to retard the progress of the vessel. Then that which had been the subject of our talks and speculations became a reality, first in small and scattered quantities which as we progressed became rapidly more extensive until nothing could be seen before us but vast fields of ice. This ice was in a soft condition, but nevertheless the ship was compelled to move through it at a low rate of speed. The nearer we came to our destination, the more compact and solid became the fields of ice; the fewer the openings and crevices through which the ship could pick her way. On the forenoon of the third day after meeting the ice it was found that we were up against the real thing. Nothing but solid ice ahead and the openings through which we had come were closed up. There was some comfort in the fact, however, that vessels might be seen on all sides of us which were similarly imprisoned. Frequently there would be a half dozen or more ships tied up to one field of ice. Visits from one ship to another were made to pass away the time. One night there would be a concert on the "Senator" and the next night it would perhaps be on the old "Cleveland." It is not always when taking a sea voyage that a person can get off and walk when he feels so inclined. Some days a progress of 50 knots would be recorded while other days there would be no progress whatsoever. Frequently large herds of walruses were espied, playing and sleeping on the ice. Other days seals would be seen in large numbers bathing in the sunshine.

At last we came to within 100 miles of Cape Nome, and furthermore, we came to a barrier of solid ice which gave no promise of yielding to the passage of a ship for an indefinite time. Most of the coal in the bunkers had been consumed, provisions in the store rooms were running low, the barometer gave indications of a storm—what was to be done? The captain decided to change his course and steer back for Dutch Harbor to put in a supply of coal and provisions. The going back to that point made the trip more than 1,000 miles longer. Three days brought us to the docks at Dutch

Harbor. Oh, but the thrill that goes through a person when given the blessings of solid footing after having been tossed about on a ship for three weeks! At this place(which still boasts of the antiquated Russian cannon which came into our possession when the territory was ceded to the United States, we enjoyed two days of mountain climbing and clam digging.

It had been the intention of Captain Patterson to remain here another day but the "Jeannia," an old whaling tender, came into port after having safely made the trip to Nome and discharged her cargo. The signal was soon given and all were again aboard the "Senator" heading for the gold fields. The ice which had formed such an effectual barrier to the progress of the vessel a few days previous had now been completely swallowed up by the sea. This is one of the characteristics of Behring Sea ice. Although it may be solid and impassable today, tomorrow it may break up and disappear like a mist before a June sun.

All were awakened early by several loud blasts of the steam whistle, on the morning of the 15th of June. This whistle proclaimed that stretched out before us was the goal of our travels. Everyone was on deck to obtain a view of the land where all hoped in a few short months to reap a bounteous harvest. There being no harbor, ships are obliged to drop anchor two miles from shore. The gold lined creeks and beaches were pointed out to us "chechows" by the "sour doughs" who were on board.

The first thing to which the newcomer's attention is called is Anvil Mountain. On the top of this mountain, which is about 1,000 feet high, is a huge piece of rock shaped exactly like a blacksmith's anvil. At this anvil, legend tells us, many centuries ago, stood the "Goldsmith of Nome." The sparks which flew from his anvil were transformed into golden ingots, thence taken possession of by the elements of nature and deposited in the creek beds below.

Shortly after dropping anchor a steam tug having a large lighter in tow came out to our ship. There was a scramble to get on this first lighter and I was fortunate enough to find standing room. With three cheers for the gallant Captain Patterson and his crew, who had brought us safely to our journey's end we were now quickly drawn away from the ship toward the beach of Nome. A few minutes more, and we were on the golden sands.

I shall not take my readers through the trials and tribulations, hopes and aspirations of the 30,000 people who in ninety days landed on those shores. Suffice it to say that those who came expecting to find fortunes lying loose for them were soon afflicted with a disease in that country called "cold feet." I will say in conclusion that having spent three years in Alaska my faith in that country has not been shaken, but I hope with the other miners that tomorrow I shall find the "paystreak."

T. D. JENSEN.

Prof. Behring, the discoverer of the diphtheria serum, has also experimented with tuberculosis serum and has been so successful in trying it on animals that he considers it advisable to try the experiment on human beings. If it proves a success he thinks that by inoculating a child it can become immune against tuberculosis. Older persons he thinks might lose their immunity more quickly,—for it seems that older animals when innoculated lose their immunity in a shorter time than young ones.

Scientific.

Professor William Harkness, U. S. N., who has lately died, was one of the painstaking scientific men who have given this country high rank in its contributions to astronomy.

* * *

The University of Edinburg confers the degree of LL. D. on Dr. Arthur Gamgee, F. R. S., emeritus professor of Physiology at Owens College, Manchester, and then the Carnegie Institute, Washington, grants him $5,000 and traveling expenses so he can make a report on the physiology of nutrition in the human body.

* * *

It has become necessary to find a means of preserving the original copy of the Declaration of Independence. The signatures of the signers have faded out and the parchment shows signs of decay. At the request of the Secretary of State, the President of the National Society of Sciences has appointed a committee to consider a means of preserving it.

* * *

It is interesting to note that the American women take a creditable part in scientific research. Two years ago a prize of $1,000 was offered by the association for maintaining the American Women's Table at the Zoological Station at Naples, for the best scientific research by women. The prize was awarded to Dr. Florence R. Sobin, assistant in anatomy at Johns Hopkins University Medical School, on "The Origin of the Lymphatic System."

* * *

A lamp has been discovered which is lighted by means of bacteria. It is claimed to give a powerful light and to be free from danger; thus making it a safe lamp to use in mines and about powder magazines. The lamp consists of a glass jar, in which a lining of saltpetre and gelatine innoculated with bacteria is placed. Two days after the bacteria are placed in the jar it becomes illuminated with a bluish green light, caused by the bacteria, which have developed in that time. The light will burn brilliantly for two or three weeks, then begins to diminish.

* * *

Gardner F. Williams, an experienced manager of African diamond mines, has written perhaps the best book, from some points of view, on "The Diamond Mines of South Africa." He gives a great deal of information in the book. Beginning with the discovery of the mines and the early pioneers he traces the development of the country to the present. He points out the ability of the South African negro; and shows that by eight hours a day, good pay, shanitary condition, good food and strict regard of the moral as well as the physical welfare of the men as much work can be done without increased expense. He has not only traced the development of the people, and that of the country, that it, the growth of cities, and changes from the beginning, but he traces the building operating of the mines in a most interesting manner; then goes on to tell of theories to account for the formation of the diaomnds in that region.

The name does not express the contents of the book very well, but there is so much and so varied a writing in it that it can hardly be expressed in the name. The book is valuable for its history of the South African region; for the history of the seige of Kimberly and valuable to miners for the information it contains.

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Editorial.

The music department has been working hard for some weeks on a comic opera but the student body and people about the college had little idea of the quality of entertainment to be given. On April 16, long before the hour for the curtain to "rise," the chapel was crowded, and people were refused admittance. Then for two hours those who were fortunate enough to get inside, enjoyed a high class opera. Even those who had attended the concerts given in the chapel during the winter and who knew something of the work being done in the department, were surprised with the effects produced. With no scenery and a stage too small for adequate action the chorus and prinpals did remarkably well. Everything moved as if given by professionals and there was not a single break in the entire program. So many commendations and requests for a reproduction have been received that the opera will be given in the Fargo Opera House May 27 and in Casselton, May 28. A souvenir program is being prepared which will contain, besides the usual cast, etc., several cuts and items of interest concerning college life. A special train has been secured for the Casselton trip and at least 100 people are expected to go. Rupert's full orchestra will play for both performances.

"Some people say that we should educate the negro. What does education do for him? Does it make his heart any whiter or his mind any better? Does he become a better citizen than before? We think not. It has been the observation of some one that 'When you educate a negro, you ruin a good farm hand,' and in this opinion we heartily concur.

If it were practicable, we think the best plan would be to get rid of the negro altogether. If we do not, a race war is inevitable, and the loss of life will be great, despite the fact that the negro is a natural coward. Up to the

present no practical plan has been found, but we hope that our statesmen will find some way in which this menace to our homes and our country shall be removed forever from our midst."

The above is taken from an editorial in The Clemson College Chronicle.

The "negro question" is undoubtedly a serious problem, but does not call for such strong measures as The Chronicle would have us believe. We cannot expect to see the negro develop from a slave to an entirely desirable American citizen in one generation, but, nevertheless, "this menace to our homes" will resolve itself into a misty nothingness as years pass. The words of Booker T. Washington, who so ardently champions the cause of his fellows, must be of some weight in this matter. He contends that the negro does not seek equality, that colonizing is impracticable as well as undesirable. He argues that since the negro is, so far as the constitution is concerned, a citizen of the United States, it is only just that he should receive as liberal an education as the white population in order that he may become a citizen in every way.

It may be wrong for a northern man to criticize the ideas of a man in Carolina on the negro problem; but when it come to saying that the extermination of the negro is necessary to the solution of the problem, it must be said that the idea is radically wrong. We might as well think of eliminating the tramp nuisance by colonizing some island with tramps. It certainly seems that Booker T. Washington is right when he says we must educate the negro in order to make a better citizen of him. If education will do nothing to elevate the negro's moral character then neither will it do anything for the white man. When people say the education of the negro is useless they expect that the entire black population will develope more rapidly than seventy-five per cent of the white population has done in the past generation. They expect an impossible advancement and because it does not take place they brand the whole system as a failure. They stand in about the same position as the would-be miner who on reaching Nome beach grabbed a handful of sand and not seeing any gold in it, said: "I knew it was all a d——d fake."

A large number of the students attended the Teachers' Institute, April 27-May 2. The lectures given by Mr. Pattengill from Lansing, Michigan, and by Superintendent Bright from Chicago, were full of good thoughts and inspiration. Mr. Pattengill delivered a highly entertaining and instructive lecture on "Nancy Hanks and the Nineteenth Century" in the High School building Wednesday evening. An effort is being made to arrange with Mr. Pattengill for a lecture trip for next winter and should the plan be successful Fargo will give him a crowded house.

Several of our exchanges have spoken in a kindly way of "Han's Hens" in a recent number of the "Spectrum." We wish to say that the article is not a product of our institution but is a clipping from the Saturday Evening Post of a recent date. Mr. Loomis, to whom due credit is given in the Spectrum, has written a number of short, humorous stories and monologues which have been published in various periodicals.

Eugene H. Lehman is the first American to win the Cecil Rhodes scholarship at Oxford University. This scholarship gives its winner three years at Oxford, six months of each year to be spent in travel in Russia and Roumania.

ROCKS.

Many definitions of a rock are given, but all mean substantially the same thing: a rock is any considerable portion of the earth. This differs a great deal from the general conception of a rock; we usually think of it as being something very solid, while from the geologist's view sand and clay are as much rock as the hardest granite. Another writer gives as a definition "any mineral or mixture of minerals occuring in masses of considerable size." This shows that there is no sharp line of division between rocks and minerals; only one occurs in great masses and the other in relatively small quantities.

Two great divisions of rocks must be first considered, stratified and unstratified, or sedimentary and igneous. They are entirely different in their structure, origin, and distribution. Stratified rocks have been deposited in layers in water, and have been later solidified by means of a cement, such as iron oxide or lime carbonate, or by the application of great pressure. Igneous rocks have resulted from a more or less fused condition and are glassy or crystaline in structure.

The sedimentary rocks are the ones with which we are mostly concerned, and therefore the ones most studied. In them is recorded the history of the earth and the prehistoric life which existed upon it. In them are contained the fossils of plants and animals, the only means we have of determining the ancient history of our globe. Stratified rock are divided into three classes, arenaceous or sandstone, argillaeceous or clay rocks, and calcarous or lime rocks. American rocks include sandstone, gritstone, conglomerates, and breccias; argillaceous rocks, slates, shales and clay formations of all kind; calcarous rock, chalk, limestone, and marble. All these classes arenanous, argellanous and calcarous, graduate in to each other, thus we may have argellanous sandstone. Conglomerates are composed of water worn, rounded pebbles, and breccias of angular fragments cemented together.

All these different kinds of sedimentary rocks were carried from the land as fine sediment, by running water, and deposited in still water. From this fact we may form a law; since all stratified rocks were deposited as sediment in water, therefore, any place on the earth's surface, where we find stratified rock must have been, at one time, covered by water.

The different kinds of sediments are deposited under different circumstances. Take, for instance, a river where it enters a body of still water, it will first deposit the heavy coarse sediment, such as gravel, this will graduate slowly into sand, and the sand into clay which will be deposited far out from the mouth of the river. If any thing should increase the rapidity of the current of the river it would carry the sand out and deposit it on the clay and the pebbles will be dropped where the sand was left before the change. Raising or lowering of the land of only a few inches is all that is necessary. Thus the different strata are produced in rocks. Arenaceous and argillaceous rocks are called mechanical sediments, for they are the fragments of eroded land. Calcarous rocks are either chemical deposits in lakes or the remains of organisms. Everywhere on the ocean bottom the shells and skeletons of minute animals are being constantly deposited. This continues for thousands of years and builds up deposits often 20,000 feet thick. This sediment being mostly made up of the skeletons of globegerina is known as globegerina ooze.

Plants, also, as well as animals, help in rock building. The principal marine plants are calcarous algae and diatoms. Diatomanous earth and travertine are both of plant origin. Travertine is formed by a jelly like plant which lives in the water of some hot springs, it separates the salts from the water and deposits them as the travertine.

But there are processes of rock formation by means of plants that can be traced more easily and certainly than these. In the great swamps and peat bogs of our low countries huge forests of trees by their fall are constantly added to the accumulated material which will in time form rock. In other places we can find every graduation between the plant and perfect rock; the first stage of the rock is peat, and this is changed in succession, to lignite, bituminous coal, anthracite, and graphite. In the peat the vegetable forms are distinctly noticeable, but the plant origin of the heavy crystaline graphite cannot be told by its structure.

From the sedimentary rocks we must now pass to the unstratified or ignious rocks. These are rocks which are formed by the evolving and solidifying of molten lava, which according as it takes place quickly or continues through long ages forms glassy or crystaline rocks.

Because of the difference in formation ignious rocks are separated into two classes, plutonic and volcanic. Plutonic rocks, as their name would indicate, cooled deep in the earth and took thousands of years in that cooling. They are as a rule crystaline in structure. Volcanic rocks, on the other hand, were poured out on the surface of the earth, and cooled quickly, this giving them a glassy structure. Plutonics occur in great masses in the axes of mountain ranges, such as the Sierra and Colorado ranges, and also in intercalary beds, in laccolites and dikes.

Granite is the principal representative of the plutonic group; it consists of mica, quartz and feldspar, sometimes also hornblende but this is oftener wanting. This rock has taken such a long time in cooling that the different minerals came together in small crystals, and these scattered irregularly about form the peculiar structure of the granite.

The study of these rocks is very difficult as they are formed only at an immense distance beneath the surface, and the only means of uncovering them is by erosion, which is a very slow process, and it has probably taken thousands of millions of years for the denuding of these rocks.

Volcanic rocks occur in great lava sheets, and volcanic cones and necks. They do not differ from the plutonics in composition, containing just the same minerals which the others do, but in texture they are widely different, being glassy or vitreous. Volcanic rocks are of three principal kinds, glassy scoriaceous and tufaceous. The ordinary melted rock which flows in a stream from a fissure or crater, gives rise to the glassy form. Scoriaceous rock is the solidified crust of lava blown into a frothy condition by the stream bubbles constantly rising up through the lava in the neck of the crater. Tufa is the dust and cindery matter which comes from an explosive eruption, this being deposited in water is stratified and then solidifies.

Intermediate between these two groups of rock is another known as the metamorphic group. The metamorphic rocks were originally simple stratified rocks but these have been acted upon by heat, pressure or chemical forces and metamorphosed into a crystaline rock; this change has entirely

destroyed the fossils which were in the sedimentary rocks, but the stratification remain to show their origin. Quartz and silicates are the essential minerals in these rocks. Gneiss, one example of this group, is the most important of all rocks. It forms about one-half of New England and constitutes a very large per cent of the earth's crust. Orthoclase and quartz are the essential constituents of gneiss. Mica is often present, or we may have hornblende in place of mica. The schists also belong to this group.

Besides these three great groups of rocks there is another, much smaller, and yet one very important, if not so much in a geologic sense, at least in an economic one; these are the vein rocks which are found in the great fissures just as the dikes but have a very different mode of formation and also consist of very different material. The vein rocks contain almost all the valuable ores of copper, silver and gold. The fissures are filled by deposits from hot alkaline water; at least this is what the general nature of vein stuffs would indicate. It has been proven that the hot alkaline water, plus iron sulphide, will dissolve gold, the king of metals. The vein work consists of calcium carbonate, quartz, heavy spar and flour-spar. Vein rocks exceed all others in the coarseness of their crystalization, and in the perfection and beauty of these crystals.

S. T. '04.

Athletics.

Last Saturday, May 9th, the A. C. second team defeated the Moorhead Concordia team by a score of 18 to 9. The A. C. battery was Worst and Greene; the battery for Concordia was Thorne and Onsagen.

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The advance in price for buildings will probably deprive us of a woman's building this year. This will greatly cripple the department and will not allow of any assembly or general exercises during the winter term. The buildings for which contracts have let, have taken 50 per cent more money than was estimated would be required to build them.

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Members of the faculty and student body have organized a tennis club. The organization is entirely independent of the college athletic association.

The officers are: Bert Scott, president; Professor Lindsey, vice-president; Ross Fowler, secretary, and Elmer May, treasurer.

Two new courts are to be put in. This will help very much as there are generally quite a number of players waiting for a chance to play.

The membership of the club this year may probably reach twenty. This number includes the members from the faculty also.

Among the faculty and the students several good players have joined the club and it is hoped that by next spring we shall be on a basis to compete with any of the institutions in this part of the country.

For several years the other institutions of the state have developed good tennis players. It is expected that this college will place some players in the inter-collegiate tournaments, who will make good records for the school and bring trophies to adorn our club rooms.

Local Happenings.

Vacation time is near.

These warm days produce spring fever.

The Athenians are "it" this year in oratory.

H——n: "Have you seen anything of my bicycle."

Mr. McDonald of the U. was a college visitor on Monday last.

The new catalog is in press and will soon be ready for distribution.

The girls of this institution maintain their reputation for "speaking."

Mr. Tom Jensen spent Saturday and Sunday at his home in Buffalo.

Professor Haverstad of Crookston was a visitor at college last week.

Miss Stephens has demonstrated that she is the best college orator in the state.

Come boys, brace up, the girls have won three places out of four in public contests.

It is rumored that one of the members of the Ethics class needs an "eye-opener."

Mr. Birch, beware. A wedding ring is a dangerous thing for a young boy to "monkey" with.

The Saturday class in Botany is very interesting and instructive. Last week the members studied the flora of oak grove.

Only one male man in the oratorical contest and he won second place.

An effort is being made to raise funds by private subscription to buy books for the city library.

The tennis club is laying out another court, so that the boys and girls will have "won a peace."

The papers of the state have many kind words for the college and its success in various lines.

The board of trustees met again Tuesday, May 12th, and were entertained at dinner by the cooking class.

Miss Mc——: "You are just like me when I first went to college, Miss R——, you think you know everything."

Miss Widlund left college last week and started for Minot, where she will remain for some time on her claim.

The college campus looks very attractive now that the lawns and trees have put on their new summer dress.

Instructor to class in Physiology: "How can you tell the age of a chicken?"

Miss D. Jensen "Why, by its teeth."

Preparations are being made for the alumni banquet in June. It is hoped that a large number of the graduates will be present.

Miss Gastman left for her home in Illinois a few weeks ago. She made many friends here that wish her well in her future work.

We are glad to see Miss Darrow's smiling face again, after being confined to the house for a time with a seriously sprained ankle.

The faculty and baseball team have had several games recently on the campus. It is remarkable how some of the old fans show up.

The special Saturday afternoon class in botany still continues to make its weekly trips. Much interest is shown by the class in this work.

Those who are to participate in the class programs during commencement week should remember that June 7 will be here in a few days.

Professor Willard has invested in a new buggy which he will use during his work in surveying and—well, the professor is still a single man.

Excited Prep, (out of breath): "Professor, I really think our program is going to fall flat. Mr. Weaver just told us he wouldn't take part."

Recently a tennis club has been organized. It is the intention of the club to build two more courts to accommodate all those wishing to play.

The members of the faculty and student body extend their sincere sympathy to Miss Margaret Greene, who is seriously ill with typhoid fever.

Little boy, in the act of devouring some deviled eggs: "Say, mamma, sometimes I don't like deviled eggs, 'cause the deviled is to strong in them."

Announcements will soon be sent out for the exercises for commencement week. Dr. Batt will deliver the Baccalaureate and Professor Hult the annual address.

Mr. C. J. Zintheo has been appointed as a member of the St. Louis exposition committee, to collect grains and grasses for the North Dakota exhibition at the fair.

The local baseball team is fast rounding into shape. There is a vast number of applicants for positions. It is believed that a faculty team will be the next announcement.

Professor Shepperd returned from a two days' trip to Edgeley sub-station, where he has been planning a number of experiments to be carried out by Superintendent Thompson.

Professor Kimberly earnestly believes that "Reading" should be taken up, in preference to anything else at college and for that reason devotes a great deal of his time to that subject.

The announcement of the engagement of Professor Mills and Miss Reynolds has been made. We offer our heartiest congratulations to the happy pair and wish them the best this world can give.

The Sophomores, when preparing to hold a class meeting, spread the report two days before hand, in order to enable the Juniors, Seniors and Freshmen to be right on the spot to assist(?) the Sophs, in their difficult undertaking.

Professor Bolley started on his eastern trip Monday evening, May 4th. After visiting in Wisconsin he will go to Washington, D. C., for final instructions. He expects to sail June 3rd on the S. S. Ryndam of the Holland-American line for The Hague, Holland. Later he will travel over other parts of Europe.

Miss Feldmeyer is prone to observe while she takes her evening rides and enjoys the beatuy of the evening sunset and the charm of the "bob-o-link" song that this state is not so desolate and devoid of pleasure after all.

Professor Waldron: "Where are the Sophomores?"

Freshman: "I don't know, but I think when that awful 'class program' pest swept over the student body, the 'Sophs' all withered and died."

We should judge, from looks of affairs on the campus, that the boys in the surveying class might better have improved their time by making themselves some sofa pillows, before commencing their work along the line of surveying.

Professor Ladd has been in St. Paul on college business. While there he obtained a complete list of pure spices and mixtures used to adulterate the same. The outfit was donated by a large manufacturing house, and is highly appreciated.

One of the young instructors at the college finds that German is a very fascinating study. He will spend three whole evenings in succession in the open air on the college campus pondering over two simple words alone, such as, Graf und Stein.

At its meeting in April the Board of Trustees established a musical department and elected Dr. C. S. Putnam director. This is a fit recognition of the services rendered during the past year. Dr. Putnam will now be enable to give his entire time to the work and many new features will be inaugurated. Elementary and advanced classed will be organized in chorus work, and band work, and classes in theory and harmony will be provided if there should be a demand for these subjects. A glee club composed of male voices will probably be developed.

Dr. Putnam's new march, "A. C. Cadets," has arrived and is on sale at the music stores and at Hulberg and Dolve's. The title page is very attractive, containing the college yell and A. C. bugle call, a cut of the cadet officers and a fine half tone of the composer. It is printed in the college colors, green and yellow. It was played for the first time at the presentation of "Priscilla." The music is catchy and we believe it will become very popular. In addition to its value as a musical number, it makes a very nice souvenir and every student should secure a copy and send it home.