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Disce quasi semper victurus; vive quasi cras moriturus.

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Virgil's Complaint.

"Sic vos non vobis nidificatis aves."

Ye little birds, beneath whose feather'd breasts
The tiny eggs repose in covert warm;
Not for yourselves ye build the downy nests
Whereon ye brood in sunshine or in storm.
Not for yourselves, but for those errant thieves
Who come to snare you with false, flatt'ring words,
Stealing your young; till even the forest-leaves
Bewail your ruined hopes. Alas! poor birds!

"Sic vos non vobis fertis aratra boves!"

And ye, good oxen, smarting 'neath the stroke
Of ploughman's goad—your ancient stripes unhealed,
Not for yourselves ye bear the heavy yoke,
And drag its burden o'er the stony field;
Not for yourselves, but for that lordly clown
Whose spring-tide toil shall end in harvest-feasts;
Who, 'neath his vine and fig-tree shall sit down,
While ye bide comfortless. Alas! poor beasts!

"Sic vos non vobis mellificatis apes"

So, also, ye, O brown and golden bees!
Who sail among the flowers all day long;
Yours is no selfish life of sunny ease,
Culling of sweets with drowsy, careless song;
Ye gather honey for the hive, 'tis true,
But never for yourselves. Marauders seize
Your amber treasures born of light and dew;
And feed upon your fruits. Alas! poor bees!

"Sic ego feci et alter tulit honores"

Ah! even so, hath Fate decreed to me!
As birds have built their nests; as toiling beasts
Have borne the yoke for others; and the bee
Hath furnished forth for idlers golden feasts;
So have I labored with a fruitless pen:
For while I wrought a cruel Destiny
Compassed me round; my toil first mock'd and then
Mine honors stole, and gave to other men;—
Alas! poor bard! Alas! alas! poor me!

—E. C. DONNELLY, in *Monitor*.

The Afghan Question.

Slowly, but with unswerving constancy, for the last two centuries, the Muscovite Cabinet has pursued the project formed by Peter the Great—a project worthy his mighty genius. It is well known that the founder of the Russian Empire, after having forced Charles XII to sign an igno-

minious peace, had conceived the design of opening up to his subjects a route to the Indies by way of Persia. If he did not succeed in his expedition, he, at least, pointed out to his successors a way which they had only to follow in order one day to obtain their share of the wealth of Hindostan. His successors have not been forgetful of their ancestor's plan, and each of them has contributed his *brick* to the building of the edifice, which bids fair to be completed by the active exertions of the present Czar.

Russia is characteristically slow in its decisions. Its resolutions are rarely adopted with that lightning rapidity which creates astonishment. Its laws, like its glaciers, slow and laborious in their movements, are adapted to the clime. In its decrees all is measured, calculated, as in a chemical laboratory. Often long days elapse between the taking of a resolution and the executing of it. When the time of action comes, it is ready. The fortunes of war may baffle its well laid plans, but it is not discouraged. Often ahead of its time by half a century, it lies concealed from the public eye, but is constant to the end in its efforts which, sooner or later, are achieved.

Fifty years ago, the Cabinet of St. Petersburg—a cabinet of dim political vision, if you will,—cast its eyes towards the Indian Ocean. Lying intermediate it beheld a country inhabited by a number of tribes, some nomadic, some fixed, and, though submissive to the rule of the Emir of Caboul, all sons of Liberty; this country—Afghanistan—Russia determined to occupy at some future day.

Asiatic Russia and the territory of Afghanistan are inhabited by numerous independent tribes hostile to the Great Empire. These peoples are gradually being reduced to subjection: the work is slow but sure.

It is an interesting study to follow the Russian troops in their different expeditions across Central Asia; as far as the "Gate of the Indies," during the last forty years.

In 1839 a Russian army set out to begin the conquest of the country around Lake Aral. At that time the elements took upon themselves the office of defending the aboriginals. With the exception of a few stragglers who succeeded in making their way back home to announce the magnitude of the disaster, the rest of the army lay buried in the snow.

In 1846 another army started off for the same country to subdue the Kirghises, fierce Cossacks

living north of Lake Aral and Turkestan. These warriors, more blood-thirsty even than their brethren of the Don and the Volga, without law or religion, had frequently ravaged the borders of the Muscovite empire, leaving behind them everywhere sad traces of their march. To protect the region west of the Ural from their incursions, the cabinet of St. Petersburg erected those fortifications which may now be seen along the Russian territory north of the Caspian sea. This war lasted till 1854, and was merciless and cruel in the extreme.

In 1847 the islands in the Lake Aral were taken from the Kirghises by the Russians and garrisoned. About the same time Fort Aralsk, on the Syr, was captured. In 1853 a new expedition was fitted out which seized on Fort Perowsky, named after the river on whose banks it stands. The war ended leaving Russia in possession of an immense territory and three fortresses, which for the future will serve as so many starting points for other conquests south-east of Lake Aral. The question now was how to prevent the tribes who possess the country in fee from rising on every little disturbance. As a means to this end, Russia abjured those traditions of despotism which have made it the terror of Europe—of the Poles and its Catholic subjects especially—and left to its Asiatic subjects their own laws, customs and religion, treating them with humanity and teaching them agriculture. On one occasion, indeed, the Kirghises endeavored to shake off their abhorred yoke. But, foiled in the attempt and forced back into servitude, they have been ever since the most loyal and trustworthy of the Czar's subjects. And when, later on, a war broke out between their rulers and the Khan of Kiwa—in other words, between their conquerors and their coreligionists of the Balkans—this people, notwithstanding the bribes and instigations of emissaries, remained faithful.

Having taken this first step, Russia resolved to proceed further. So, in 1864, it turned its steps southward. Turkestan and the city of Taschkent became its property. Taschkent is the centre of commerce in Central Asia, and in its possession Russia has another point of support to aid it in its conquests.

In 1866 war was declared against the powerful Emir of Boukhara. Being defeated successively in three engagements, he was forced to yield to the conquerors the celebrated city of Samarkand. In connection with this city is a curious circumstance, worthy of mention. The inhabitants made no defence against the victors of their Emir but, on the contrary, forbade him entrance after being vanquished in the valley of the Syr, and opened their gates to the Russians who were pursuing the routed forces of the Emir. So true is it that the people are tired of the despotism of Asiatic princes; and, as more recent facts prove, give themselves up without fear to the rulers of the Kirghises.

In 1873 Russia directed its steps towards western Turan and subdued the Khan of Kiwa—as well as his colleague—who henceforward shall be tributary to Russia.

The years 1875 and 1876 were marked by the

conquest of Kokan, east of Samarkand. Besides this, the Kirghises who inhabit the plateaus of Pamir, north of the mountains of Cachmere, came and offered themselves to the Czar.

The year 1884 was still more remarkable. We find in it a recurrence of the phenomenon already noticed in 1866. The Turkomans of the south, west of Turan, east of Persia, as well as the Khans of Merv, gave themselves up to Russia. This acknowledgment of the sovereignty of the Czar was altogether spontaneous. It is said that it was occasioned by the influence of the Khan of Kiwa, a tributary of Russia, assisted by the confidence with which the policy of the Russian Governor, General of Turkestan, inspired the various tribes.

A few days afterwards the Russian journal *Kavkaz* announced that, in virtue of a treaty concluded between the Russian and Persian empires, the city of Sarach in the Khorasan was transferred to the former. Now, this city is only twenty-six leagues from Herat—"the key of the Indies." Scarcely was the oasis of Merv within the grip of Russia when the emperor contributed five million rubles towards the expense of building roads and fortifications. It will be said, perhaps, that communication between Merv, Moscow and St. Petersburg is slow and difficult. Here again the secret work of Russia shows itself, for not only has telegraphic communication been established at various points throughout, but very soon a railroad will bring Merv within a distance of four or five days' journey from Moscow. Moreover, Afghanistan has been explored at various times within the last few years by Russian officers.

Such, then, is the position of Russia at present. To-day it has possession of all the routes leading from India into Europe. Its armies were mustered in secret, and when England uttered its cry of alarm, it was perhaps already too late to prevent a conquest which the "Queen of Colonies" dreads as a most terrible catastrophe. Since 1846 the Muscovite power has annexed to its dominions a territory of nearly 2,000,000 square miles. It has succeeded in attaching to itself the conquered tribes, not through fear, but through affection; not by carrying on an exterminating war; not by sending out savage hunting parties to hunt down the natives like wild beasts—as was done in Tasmania,—but by protecting them, by healing their dissensions, by instructing them in agriculture, and by teaching them to extract the metals that lie hidden in the soil.

In her present aim—the possession of Afghanistan,—Russia will have to contend with an enemy more formidable than any she has hitherto encountered. This enemy is England, which, for reasons easily understood, regards with jealousy any movement tending to deprive the country of its independence. After having met with three repulses—repulses which will not soon be forgotten—in her efforts to seize upon the country, England now takes a hand in defending what she could not conquer. It is true that she has thus far been so successful as to induce the Emir of Cabul to receive a plenipotentiary who watches and di-

rects all the actions of the government and protects the interests of the Mandarins; but when she speaks of the affection that the Afghans have for their protector, the words of a well-known statesman seem to be forgotten: "However disagreeable the avowal, there is no doubt that the Russians have the advantage, and one can easily prophesy they are to be the usurpers of India."

They have the prestige; they have made immense conquests in Asia since 1846; their armies are respected, nay, even welcomed, as the voluntary submission of the Turkomans proves. That they have the prestige, needs no further evidence. Besides, England forgets that it has wounded a nation whose love of liberty is second to none other, and whose vengeance is hereditary. A fact no less strange than unaccountable is, why did not England occupy Herat after Russia had taken possession of Sarach? That the Madhi was troublesome and prevented it from openly declaring war against Russia at the time, may, perhaps, have been the reason, but the more apparent one is that she preferred to conceal her policy and involve the Afghans in a war in which itself would take part as the champions of that liberty of which it had itself, in vain, attempted to rob them.

According to all appearances, Russia will not arrest its march on Herat. From Herat it sees Afghanistan: it must have there either a part of Hindostan or a port in the Gulf of Persia. Russia must have Afghanistan,—it is the well-spring of the Muscovites,—their treasury. The millions which will be spent in joining the line of the Caspian sea to the railroad north-east of the Indies will be quickly refunded, for the moment the work is finished, seventeen days will suffice to go from London to the Indies *via* Moscow, and Russia will be the great commercial route of the world.

M. R.

The Country West of the Mississippi River.

II.

The Rocky Mountains are about 500 miles west of the Missouri River, and the elevation of the plains at their base is from 5,000 to 6,000 feet above sea-level. On this account, the first appearance of the mountains is somewhat disappointing. Instead of beholding a great mountain chain that rises like a wall from the plains to an elevation of from 7,000 to 14,000 feet, a person sees an interminable line of high table-land, the average altitude of which is 2,000 feet above the plains, and from which isolated mountains and conspicuous peaks shoot up to heights varying from 1,000 to 7,000 feet. Though many of them are 14,000 feet above sea-level, yet half of the elevation is not apparent on account of the altitude of the plains and the higher level of the table-land which constitutes the average summit of the mountains. The loftier peaks can readily be seen at a distance of 100 or 125 miles. When first descried by persons approaching from the East they look like great masses of clouds lying along the horizon. Their sombre

base and snow-white crest seem only to heighten the illusion. The air is so dry, clear and crisp that the vision has a remarkable scope. Objects 100 miles away are supposed to be within less than half of that distance. In Colorado and Wyoming the Rocky Mountains have an average width of 500 miles. In Montana and further north they deflect obliquely toward the Pacific Ocean, and the range becomes considerably narrower. After passing the northern boundary of the United States it turns north again and continues almost undeviatingly in that direction till it sinks out of sight in the Arctic Ocean. West of it, between it and the ocean, lies the great basin of the Columbia River, and further south is the noted Salt Lake basin. The former is from 2,000 to 3,000 feet above sea-level, while the latter is about 2,000 feet higher. Between them is a more elevated region. Along the southern borders of Utah and Nevada, and extending into Arizona for 100 miles or more, is another high section. The average elevation is 6,500 feet above sea-level. Further south is the basin of the Gila River. This extends all the way from New Mexico to California, and the average altitude is less than 4,000 feet above sea-level. The great interior basin of Salt Lake is generally admitted to be the most barren and uninviting of the number. The cañons on the western slope of the mountains are well watered, have excellent soil, abound in minerals, and are supplied with sufficient timber for all practical purposes. But all the favored localities in that section have been taken by the Mormons, who there live, and cultivate their farms, and have their towns and industries. In some places Salt Lake is very near the Wasatch Mountains, which constitute a spur of the Rockies, while at other points it is 20 or 30 miles from them. Although five rivers flow into Salt Lake, yet there is no outlet from it. The superfluous water is evidently taken up into the dry air by evaporation. The lake is over 120 miles in length and about 50 in width. It is said that the proportion of salt in the water is so great that a pound of almost pure salt can be secured from the vaporization of less than two quarts of water. Fish cannot live in it, and it is so buoyant that anybody may swim and nobody need drown in it. West of the lake, or about 70 miles from the mountains, the scene changes, the perspective becomes less inviting, and a tract of desert, bleak and barren as Cobi or Sahara, opens upon the view. An extensive area, comprising miles upon miles of sand and alkali dust, appears. No tree, no shrub, no blade of grass there greets the vision. From it rise exhalations frequently irritating and painful to the throat, nostrils and eyes. No river, stream or rivulet runs through it. No living thing, not even the lowest forms of reptile life, can there be found. And poor and indifferent indeed must be the locality which rattlesnakes refuse to frequent in that region. Beyond this desert tract a slight improvement in the appearance of the country becomes visible. But the most notable kind of vegetation there and throughout the great basin is what is commonly known as grease-wood or sage-brush, or what is less com-

monly called *artemisia*. It is two or three feet in height and has a decidedly repulsive appearance. Grease seems to exude from it, and it is covered with a grayish alkali dust. In some places it spreads over the country for miles and miles, and lines the sides of the dry and dreary hills, growing even to the verge of barrenness near their very summits. West of Salt Lake the water is generally brackish and almost as unpalatable as lye. Everywhere, too, it is scarce. With the exception of Humboldt River and Sink, there is hardly any stream or body of water worthy of a distinctive name. There is no outlet from the basin to the ocean, and it is completely surrounded by mountains that rise from 1,200 to 3,000 feet above its general level. It is about 500 miles in length and 300 in width. It is supposed that an inland sea or great lake once covered it, and there is strong evidence of a geological nature to confirm the impression. The small streams that issue from some of the hills disappear altogether after flowing a few hundred yards. They sink into the parched soil and the burning sand. The annual rainfall is seldom more than four inches. Lightning and thunder are almost phenomenal, so seldom are they seen and heard. The sky is almost uninterruptedly clear and free from clouds. The golden glories of the sun fall upon this great basin on an average of 300 days or more each year; and at night the moon and the stars shine forth and scintillate in the heavens with a peculiar brightness and resplendence. At sunset flashes along the horizon the dying glory of the day—the luminous brightness of the departing sun—in bits, and banners, and streamers of fire and brightest coloring. There are but a few small towns in all that region. The houses are small, built of coarse boards, and generally unpainted. Hardly any of them are plastered. White sheets are ordinarily used in lieu of walls between the apartments. The inhabitants are chiefly railroad employes and persons who depend upon the meagre profits of trade with the few straggling mining camps in the interior. There are also a few Shoshone Indians in and around the towns, and it would be by no means an easy matter to ascertain or find some plausible explanation of how they do live. With the exception of these towns, the whole region is practically uninhabited. The lands are not cultivated, and no kind of agricultural industry thrives in it. For that matter it may be said that there are but few localities between the central part of the great plains and the Sierra Nevada Mountains—a distance of 1,300 miles—in which anything like special attention is bestowed upon the cultivation of the lands. And wherever they are cultivated, as in the immediate vicinity of the mountains, it is necessary to irrigate them. Otherwise they would produce nothing. Even the trees planted along the sides of the streets in Cheyenne, Denver, Georgetown, Pueblo, Laramie, Ogden, Salt Lake City, etc., must be irrigated. To that end, and with a view also to the maintenance of cleanliness and healthfulness, the persevering hand of industry has turned streams into the streets of all the cities of the plains and the moun-

tains. Through every street two streams usually flow, one being on each side. The water for this purpose is received in some instances through ditches from rivers or little lakes ten or twenty miles away. Among the mountains are numerous rivers and lakes at elevations of 6,000 and even 10,000 feet above sea-level.

THE MOUNTAIN TOWNS

are more numerous and populous than those of the plains east of Cheyenne, Denver, etc. The most noted place is Leadville, which had a population of 30,000 a few years ago. But when the excitement incident to the discovery of several rich silver mines in the vicinity subsided, its popularity suffered an ominous eclipse, and its population at present is less than 15,000. Mining is the chief industry of the mountains, although on the Laramie Plains and in some of the parks the cattle business has the lead. Some of these parks comprise hundreds and others thousands of square miles. They have the appearance of great depressions in the mountains, or, at any rate, the mountains tower above them on every side. Through them flow perennial streams and rippling brooks, the water of which is pure, clear and wholesome. Timber tracts and small prairies beautifully alternate. They afford excellent shelter to the numerous kinds of mountain game that seek and abound in them. The highest peaks in vicinity of the parks mark the line of the "Continental Divide." This is an imaginary line running along the summit of the mountains. It is the watershed of the continent, or the dividing line between the Atlantic and the Pacific Ocean. All the rivers, and streams, and rivulets that have their rise on the east side of this line flow to the east and ultimately enter the Gulf of Mexico and the Atlantic Ocean, while all that have their sources west of it flow to the Pacific, or into Salt Lake, or disappear altogether in the sands of the interior basin. The country east of the "Divide" is called the "Atlantic Slope," while that west of it is known as the "Pacific Slope." The average elevation of the mountains is about 7,500 feet above sea-level. In vicinity of the railroads, now numerous enough for all practical purposes, there are several towns which have become notable on account of their location, their industries, or the resources tributary to them. Their climate is generally much less severe than that of Leadville, which is built at an elevation of more than 10,000 feet above sea-level. But the inhabitants of that city above the clouds have at least one compensation for the rigors of the climate. Cats cannot live there! Though sage-brush—always indicative of a poor, dry, sandy, alkali-mixed soil—is very common on the mountains, yet there is no doubt that the land is much better and more productive than in the basin west of Salt Lake. Near Laramie City are great sulphur and lead deposits. At Carbon, coal of fair quality is found in abundance. Green River, 845 miles west of Omaha, must always be interesting to the geologist. The perpendicular bluffs known as the "Green River Shales" exhibit rocks of

different colors and different varieties in well marked strata, lying one above another, for several hundred feet. Toward the top clay and lime predominate, and then come boulders, pebbles and coarse sand. The river itself rises in the north-west part of the Wind River country. About 350 miles from its source it flows into the Colorado River, which drains and carries off to the Pacific most of the waters of the Rocky Mountains west of the "Divide." Green River runs for a considerable distance through a soil comprising decomposed rock, slate, etc., the color of which is ultra green, and they impart that color to the water. Hence, "Green River" is not a misnomer. Hiliard is noted for the thriving business there done in lumber, telegraph poles, railroad ties, etc. From the Uintah Mountains, 25 miles to the south, a great flume comes down to the town. It is made of planks spiked together in the form of a V, and practically water-tight. It slopes down from the mountains with due reference to uniformity of grade, being supported in the depressions and hollows by timbers properly placed under it. A stream on the mountain is brought to it by means of a ditch, and thus a rapid current of water from eighteen inches to three feet in depth is introduced into the flume. The lumber, ties, telegraph poles, cord-wood, etc., cut on the mountains are thrown into this flume, and away they are carried by the water at the rate of 15 or 20 miles an hour to the busy town 2,000 or 3,000 feet below. In referring to the Wasatch and Uintah Mountains it may be well, by way of explanation, to say that they belong to and are a part of the Rocky Mountains. The higher peaks and more noted spurs of the Rockies have distinctive names, as Pike's, Gray's and Long's Peak, the Elk and Sangre de Cristo Mountains, Mount Lincoln, Mount of the Holy Cross, Sheep Mountain, Black Hills of Wyoming, etc. These are not the celebrated Black Hills. The latter are an isolated group, and lie much further to the north-east, being on the boundary between Wyoming and Dakota. Among the objects seldom out of sight on the mountains are isolated masses of rock regular enough in outlines to resemble the walls, and columns, and steeples of vast cathedrals—so strongly suggestive of the comparison as to be called "Cathedral Rocks," "Church Buttes," etc. Rock formations of striking shapes and gigantic proportions; resembling in the distance lonely cemeteries, deserted cities, frowning fortresses, and the like, may be seen in many localities on the summit of the mountains. But on the western declivity, leading down into Salt Lake basin, these rock formations are most numerous, most varied, most grotesque. The descent begins a short distance west of Wasatch, which is almost midway between the Missouri River and the Pacific Ocean. There the traveller enters Echo Cañon, and as he follows its downward incline, he sees on his right a wall of red sandstone, the altitude of which is from 500 to 1,500 feet. In the distance it has the appearance of a line of castles, and is consequently called "Castle Rocks." Further on the cañon increases in perplexity, and its wonders become multiplied.

Awful chasms, great gorges, extensive sandstone formations, and rocks of various shapes, sizes and colors, come into view. The south side of the cañon is much tamer than the north, the mountain-sides being generally sloping and the snow-covered summits being the only redeeming feature of the scenery. On the north, walls of granite, and sandstone, and clay, and conglomerate, shoot up almost vertically in several places for hundreds and hundreds of feet. "Hanging Rock," "Steamboat Rock," "Pulpit Rock," "Witches' Cave," "Devil's Slide," etc., are among the specially striking objects seen in this interesting cañon. It joins and has its continuation in Weber Cañon, through which Weber River runs on its way to Salt Lake. These cañons have a combined length of 50 or 60 miles, and in that distance the decline in elevation is about 2,500 feet. The valleys in vicinity of Salt Lake are about 1,500 feet lower than the plains at the eastern base of the mountains. Though the lands have to be irrigated in both quarters, yet the Salt Lake region has a decided advantage in respect to fertility of soil, propitiousness of climate, and requisite supply of water and timber. All the ordinary agricultural products, including even corn, which needs a warm climate, grow there and flourish. The mountains shelter the valleys from the blizzards and severe storms of the north, but nevertheless, high winds are not uncommon. For three or four hours at a time these blow steadily, and sometimes furiously. Occasionally, they pick up sand and small pebbles, which they cast against whatever stands in the way with a degree of violence not unlike that attending the fall of hail. Most people feel constrained to seek indoor shelter from the pelting of these storms. After them vegetation looks scorched and withered, and so remains for several hours.

For 500 miles west of Salt Lake the country is mainly a desert. Mining is the chief industry, though for the last six or seven years even that has been extremely dull and unprofitable. But as this section has already been briefly described, it would hardly be proper to refer minutely to it again. In dismissing it from further consideration, it may be said that

THE SIERRA NEVADA MOUNTAINS

form its western boundary. Most grateful is the view of their pine-clad sides, rushing streams, crystal lakes, snow-filled gorges, granite peaks and towering summits, after the monotonous and fatiguing journey from Salt Lake. Their grandeur, their varied beauties, their exhilarating atmosphere infuse new life into the weary traveller. At their base the soil is comparatively rich and productive. Gardens and tracts of cultivated land are to be seen in the towns there situated. The most noted of these are Reno, Carson City, Gold Hill, Virginia City, etc. A few years ago these were famous in connection with the mining interests of the Pacific Slope. They were then teeming with life, but now they are comparatively deserted. The value of the precious metals annually sent from them to market was over \$25,000,000, but

now it is less than \$3,000,000. Business was at high tide, wages were good, every one willing to work was employed, and boundless prosperity seemed to prevail; but the volume of business has shrunk to a low ebb, wages are not relatively as remunerative as in the East, idleness is no longer an index of indolence, and prosperity has vanished, leaving only the exasperating relics of former favors. But up and across the mountains it is different, and the view is more animating. Signs of life, activity and enterprise there multiply. Wood-choppers are busy even on the higher levels. Saw-mills are in operation at several points, especially along the Truckee River. The dairy business is conducted on an extensive scale, the mountain towns and San Francisco affording a reliable market. Numerous V-flumes descend from the higher elevations miles and miles away, where the wood-choppers are at work. They serve as conduits for several mountain streams, the water of which runs in them with great velocity and carries down to the railroad immense quantities of railroad ties, cordwood, telegraph poles, lumber, etc. Vast piles of lumber indicate clearly enough the chief industry of Boca and Truckee, which are thriving places high up in the mountains. The steep roofs of the houses in these places suggest how deep the snow falls. Were they flat enough to retain it as it falls they would doubtless be crushed and destroyed. The inhabitants insist that the snow sometimes comes down upon them at the rate of a foot an hour. It was in this section, or near Donner Lake, two miles distant, that the Donner party perished of cold and starvation in 1846-7, being hemmed in for months by snow ranging from 12 to 20 feet in depth. Twelve miles south of Truckee is the beautiful sheet of water known as Lake Tahoe. It lies on the boundary between Nevada and California. Measurements indicate that it has a depth of 1,700 in at least one or two places. Though the water is clear and beautiful, it is said that it is singularly lacking in buoyancy, and that the heavier kinds of wood at once sink in it. In the summer it is a favorite resort for tourists from distant parts of California and even the East. Its elevation above sea-level is about 6,000 feet. A short distance west of Truckee begin the famous snow-sheds of the Sierras. They have in the aggregate a length of 45 or 50 miles. One of them is so long that a train may proceed in it at the regular speed for an hour or more before reaching the end. They are constructed of heavy timbers, and are not unlike a great tunnel, although better lighted.

(CONCLUSION NEXT WEEK.)

THE poet Longfellow has paid the following beautiful tribute to the Blessed Virgin Mary:

"And if our faith had given us nothing more
Than this example of all womanhood;
So mild, so merciful, so strong, so good,
So patient, peaceful, loyal, loving, pure,
This were enough to prove it higher and true
Than all the creeds the world had known before."

Light.*

A satisfactory definition of light has not, and probably never will be, given. Two theories have existed concerning it, one of which is at present rejected by scientific men. However, it is necessary for the proper treatment of our subject that we should consider the main points of each.

The first is the Emission or Corpuscular theory, the principal defenders of which were Newton, Biot, Laplace, Malot, and Brewster. It supposes that light consists of small particles, emitted, with inconceivable velocity, by luminous bodies, and fine enough to pass through the pores of transparent media. Considering the velocity of light, which is generally supposed to be 192,500 miles a second, these particles, if they exist, must be infinitesimally small; for if they had the least conceivable weight they would destroy so delicate an organ as the eye. This is one of the principal objections to the emission theory, but a more formidable one has been made. In direct reflection, according to this theory, the light particles are first of all stopped by a repellant force exerted by the reflecting body and then driven back in the contrary direction by the same force. This repulsion of the particles is selective. The reflecting substance drives back one portion of the group of particles and attracts and transmits the remainder. When a particle of light approaches a refracting surface obliquely it is drawn toward the surface. Refraction is thus accounted for. The velocity of light is augmented during this deflection, and after entering the refracting medium it retains its increased velocity. According to this theory, the bending of a ray of light towards the perpendicular increases its velocity. In short, the higher the refracting index, the greater is the velocity of light. But it has been conclusively proven that the reverse is the case and that the velocity is diminished as the refraction index is increased. This is the great objection to the emission theory, and it is one which has never been answered and probably never will.

This theory was first opposed by the celebrated astronomer Huyghens and the no less celebrated mathematician Euler, but it was completely overthrown by Thomas Young and Augustin Fresnel. These two eminent philosophers, while adducing a number of facts not explained, or rather not explainable by the emission theory, succeeded in establishing the most complete parallelism between optical phenomena and those of wave motion. The justification of any theory consists in its ability to account for phenomena. This is the basis upon which the second theory rests, and it is every day becoming more securely established.

It is called the wave theory, or the undulatory theory of light. It claims that light is the production of wave motion, and accounts for the great elasticity of propagation in light by supposing the substance which transmits it to be both extremely elastic and of extreme tenuity. This substance

* Paper read before the Notre Dame Scientific Association by JOHN W. GUTHRIE.

they call luminiferous ether. The molecules of luminous bodies are in a state of vibration. The vibrations are taken up by the ether and transmitted through it in waves. These waves impinge on the retina and excite the sensation of light. In the case of sound the air particles oscillate to and fro in the direction in which the sound is transmitted; in the case of light, the ether particles oscillate to and fro across the direction in which the light is propagated.

The intensity of light depends on the distance to which the ether particles move to and fro. This distance is called the amplitude of the vibration. The intensity of light is proportional to the square of the amplitude, and also to the square of the maximum velocity of the vibrating particle. The angle of incidence in light is always equal to the angle of reflection.

DISPERSION OF LIGHT.

Newton first unravelled the mystery of solar light, proving it to be composed of an infinite number of rays of different degrees of refrangibility. When such light is sent through a prism its constituent rays are drawn asunder. This act of drawing asunder its rays is called dispersion. The waves of ether are not all of the same length, and in refracting substances the short rays are more refracted than the long ones. This is the cause of dispersion. The luminous image, formed when a beam of white light is decomposed by a prism, is called a spectrum. The solar spectrum is composed of the following colors: Red, orange, yellow, green, blue, indigo and violet.

The color of light is determined only by the length of the waves which diminish gradually in length from red to violet. The number of rays that enter the eye in one second when red light is produced is 477,439,680,000,000, and when violet is produced it is 699,000,000,000,000. Natural bodies possess the power of absorbing the light that enters them. This power is selective, and hence arise the phenomena of color. In wave motion the motion of the wave must be distinguished from the motion of the particles which at any moment constitute the wave. When light from two different sources passes through the same ether, the waves from the one source are more or less affected by the waves from the other. This action of one wave upon another, whereby the oscillatory motion is either increased or decreased, is called interference. Newton claimed that if light were propagated by waves, shadows could not exist, because the waves would bend around opaque bodies and abolish the shadows behind them. The wave theory admits the bending round of the waves, but claims that the different portions of the inflected waves destroy each other by their interference. This bending round the edges of opaque bodies is called inflection or diffraction of light. In air, water and glass, the ether has the same elasticity in all directions; but when water crystallizes, the case is different. Here the molecules are closer together in some directions than in others. This arrangement of the molecules is accompanied by a change in the surrounding ether,

which causes it to possess various degrees of elasticity in different directions.

This phenomenon may be observed in a peculiar manner in Iceland spar. A wave of light passing through the spar is divided in two; one corresponding to the greater elasticity and the other to the lesser. The velocities are also different. Hence, in Iceland spar, as we have two waves moving with different velocities, we have double refraction. This phenomenon was first discovered by Erasmus Bartholinus, and was described by him in a work published in 1669.

The polarization of light is defined to be the change produced upon light by the action of certain media by which it exhibits the appearance of having polarity, or poles possessing different properties. Solar light consists of two rays of different polarities. Of three kinds of rays having properties altogether different,—viz., the colorific, the chemical, and the luminous,—the last has three different colors: red, blue and yellow, from which all the other colors are formed. White is due to the presence of all the colors, and black to the absence of them all.

Light also affects plants. The change of position in the leaves of plants at different periods of the day is owing, almost entirely, to the agency of light; and those plants which grow in windows in the inside of houses naturally seek to turn their leaves towards the light. The more fully plants are exposed to the light, the more color they acquire. It takes about eight minutes for solar light to travel from the sun to the earth.

Let us consider for a moment the nature of light and heat. What are they? The first thing necessary to answer this question is to find out what they can do, as we only know things by their effects. We find them capable of producing motion: weights may be lifted by them; wheels may be turned and projectiles fired by them. We can, therefore, come to but one conclusion, namely, that light and heat, as they produce motion, must be motion.

Let us here conclude. In this essay I have endeavored to place before you the theories on light and some of its principal phenomena. I have endeavored to show, as clearly and concisely as possible, the basis upon which the two theories rest, especially that of the wave theory. Still, I do not claim the wave theory to be irrefutable. About a hundred years ago a different theory was held by many eminent scientific men, but it has almost entirely given way to the wave theory; and in like manner the wave theory may have to give way to some other. The theory of gravitation rests on its competence to account for its different phenomena, and on a similar theory rests the wave or undulatory theory, but the phenomena are a great deal more varied and complex.

POLICEMAN:—"Have you a permit to play here?" Organ-grinder:—"No, but it amuses the little ones so much." Policeman:—"Then you will have the goodness to accompany me." "Very well, sir; what do you wish to sing?"—*Fliegende Blätter*.

NOTRE DAME SCHOLASTIC.

Notre Dame, May 9, 1885.

The attention of the Alumni of the University of Notre Dame and others, is called to the fact that the NOTRE DAME SCHOLASTIC has now entered upon the EIGHTEENTH year of its existence, and presents itself anew as a candidate for the favor and support of the many old friends that have heretofore lent it a helping hand.

THE NOTRE DAME SCHOLASTIC Contains:

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Address EDITOR NOTRE DAME SCHOLASTIC,
Notre Dame, Indiana.

—We are in receipt of the first number of the "Catholic Hierarchy Illustrated"—a new publication issued in Rome, and already noticed in these columns. The present number contains an excellent cabinet-size photograph of his Holiness Leo XIII, and 32 photographs of Cardinals, heads of religious orders and Papal dignitaries.

—The Scientific Association has displayed commendable zeal and activity since its re-organization this session. Several of the essays read before the Society have already been published in the SCHOLASTIC and others will follow in due time. Elsewhere we publish the programme for the first of a series of public *séances* to be given by the Association, which, we have no doubt, will be alike creditable to the scientists and interesting to their fellow-students who may attend.

—It is to be regretted that our suggestion made a few weeks ago, in regard to purely literary entertainments, has not met with the active practical response expected. There can be no doubt of the incalculable benefit which would result from such exhibitions. Certainly, the time occupied in the work of preparation could not be put to better use. While cultivating system of style and composition, the essays, speeches, etc., thus prepared serve as a means of giving polish and finish to the studies of the student. For he will naturally take more pains in such labor than he would with an ordinary composition or essay, and its delivery calls for a corresponding exercise of oratorical culture in order to give it effectively. Thus, ease before a public audience, avoidance of embarrassment, fluency of speech, gracefulness of manner and gesture will be attained by the student before he is called

upon to make his appearance on the great stage of the world.

It is not too late yet to have a few of these entertainments before the end of the year, and we again commend the matter to the attention of our societies.

—We learn from the *De Pauw Monthly* that at a meeting of the self-styled "Indiana State Oratorical Association," held at Indianapolis, the representatives of "Purdue and Notre Dame were refused admission to the Association." From this it might be inferred that Notre Dame had applied for admission. *Notre Dame has not applied for admission*, and, moreover, does not intend to apply for admission until she is sure that the members of the so-called "Indiana State Oratorical Association" are the right kind of people to associate with, and likely not to bring discredit upon the higher educational institutions of the State.

Notre Dame stands on her dignity; she will not condescend to petition for admission to an association that has proved itself so narrow-minded as the one in question. We understand that two years ago the Euglossian Society of this University did seek admission to the so-called State Oratorical Association, and were refused. The Association professed to represent the colleges of the State,—therefore we presume the Euglossians, the oratorical representatives of the University, rightly thought themselves entitled to admission, and applied in due form. They were black-balled, without any satisfactory reason being given. That, we think, settled the claim of the clique in question to the title of "Indiana State Oratorical Association," and the Euglossians of '85 do not wish to have anything to do with it, or any other fraudulent clique of the kind. When there is a State Oratorical Association worthy of the name, the Euglossians will gladly join it; not before.

We congratulate Purdue on the honor conferred upon it. It must possess signal talent in oratory, manliness, and breadth of view, to make it feared by the representatives of the small colleges who, like the "three tailors of Tooley street," have been masquerading at Indianapolis as the "Indiana State Oratorical Association."

All the same we thank the kind friend, or friends, who may have thought proper—without any authorization from Notre Dame, however—to present our claim for admission to the Association. This attempt at reformation inclines us to the belief that everything is not rotten in Denmark, that a nucleus exists around which in due time a creditable State Oratorical Association may be formed.

On the Growing Necessity for a Botanic Garden.

American races, whether human, animal or vegetable, cannot hold their own against foreign. Within the memory of those now in the prime of life, the Indian roamed unrestrained through the forests of this neighborhood, where he is now a greater curiosity than a Chinaman is. Traces of

the beaver's engineering may yet be found upon our creeks, but the beaver himself not within a thousand miles. The buffalo and the elk are becoming rare; large flocks of pigeons no longer crush one another to death at their roosts, and the very song-birds are giving place to the saucy English sparrow. One would start more game in a quarter of an hour in a European forest than might be met in a day's travel through some of the most sequestered spots in America. By roadsides, and on ground that the plough has once touched, more than half the botanical specimens you find are marked "adv. from Eu." Even the rank and thrifty Jimson weed (*Datura Stramonium*) is driven from its fastnesses by the foreign May weed (*Maruta cotula*), its equal in offensive odor, its superior in exuberant vitality. On November 2, 1882, after the frosts of October had done their destructive work, of nine wild-flowers found in bloom, three only were not marked as foreign; these were the witch-hazel (*Hamamelis Virginica*), the fringed gentian (*Gentiana crinita*), and *Potentilla Canadensis*. Of the others, one was the mullein, by many supposed to be native. Henry Ward Beecher says he found it in a European conservatory regarded with admiration as the "American Velvet Plant." But Gray ruthlessly brands it, with all its congeners, "(Nat. from Eu.)," and its very name "mullein" smacks of ante-Shakspear-ean English. Its botanical name, "verbascum," is read in Pliny. And it is never found except where the plough has once made its way. If latest in the fall, the foreigners are also earliest in the spring. *Crocus vernus*, this year at any rate, got the start of *Hepatica triloba* and even of *Symplocarpus foetidus*, which Oliver Wendell Holmes claims as our first "flower" of spring.

The disappearance of rare native species from our own neighborhood within the last twenty-five years has been marked. Last summer, during the June examinations, a friend showed me a small specimen of *Calopogon pulchellus*, asking what it was, as he had never met it before. The sight of it recalled the time when the marsh land between the lakes was gay every June with the numerous crimson spikes of this beautiful orchid, now so rare. But these marshes have been drained and filled in with other soil, until they are now no more than moderately damp meadows, while the practice of mowing the grass so early in June has consummated the destruction of this and other plants. We do not quarrel with the improvement. It is pleasant to look upon a green field through the parching days of August, and the green can only be maintained by early and constant mowing. But some arrangement should be made for the preservation of species displaced by these improvements.

The pretty purple *Gerardia*, so common once in the same locality in the fall, now requires a search. A very rare plant, *Cypripedium candidum*, still blooms every year in the wet, marly places near the outlet of the upper lake, which no one has, as yet, had the courage to attempt "re-claiming." Its chief foes are the botanists them-

selves, who pluck every specimen they can find. The same may be said of *Menyanthes trifoliata*. On the 2d of July, 1883, I found in the then undrained, brushy land, once known as "St. Michael's Woods," between the Niles Road and the railroad track, specimens of the showy purple *Epilobium angustifolium*, a plant so rare as not to be reported in the excellent little *Flora* of Indiana lately issued by the Crawfordsville botanists. The plough has now passed over the spot where it grew. Further down, on the flats by the river, is a spot where, hitherto, spring flowers most did flourish. The white blossoms of the *Sanguinaria* there emitted their faint fragrance. *Viola blanda*, the one American violet, among a dozen species, that affords perfume, might also be found. *Erythronium Americanum* could be found nowhere else within walking distance, and the woods were literally carpeted with *cardamine* and *dentaria*, *polemonium* and *phlox*, yellow and blue violets. This year the process of clearing has begun, drainage will follow, and the monotonous usefulness of arable land will supplant this natural botanic garden. The spot where alone blooms the trailing arbutus, or May flower, (*Epigaea repens*) is becoming narrower every season by the same fatality of utilization. *Castilleja coccinea* and *trillium grandiflorum* will be driven this spring from their chosen nook where the woods open upon the marshes of Cottin's Creek.

As our government places arms and ammunition in the hands of the aboriginal races, as the only means of enabling them to sustain life, although knowing that the said arms are quite likely to be used to the destruction of white settlers, so must the rulers of the world of science use energetic means for the preservation of native species of plants and animals. Our florists spend much time, labor and money to raise vast crops of tulips and geraniums, interesting to the scientist chiefly as examples of hypertrophy. Should not something, then, be done, in an institution devoted to science, to preserve the more truly beautiful and delicate plants that are in danger of being driven from their own native soil by these bloated popular favorites?

In 1871, Rev. J. C. Carrier selected a spot admirably adapted to the needs of a botanic garden, embracing the varieties of woodland, marsh and plain. Moreover, it was almost valueless for any other purpose. He laid it out carefully, appropriating a bed to each of the natural orders, and was diligently engaged in filling them, when he was called away to a distant field of usefulness, leaving no one who could find time even to preserve what he had done, from falling into neglect. The more coveted specimens were transplanted by those who thought they had a right to them; the less sightly bloomed on from year to year as best they might, and after years of ruin, a greater variety of botanical specimens is still to be found here than in any other spot of similar size on the grounds. But would that it were restored to its primitive design!

ARTHUR J. STACE.

Exchanges.

—The *Catholic Mirror*, of Baltimore, has just entered upon its 36th year, and inaugurates the event by enlarging its pages and coming out in a handsome new dress. Several new features have been added to the paper, prominent among which are a number of original articles from able Catholic pens. These, together with a new story by a popular Catholic writer, also begun, furnish an interesting and instructive literary miscellany in addition to the large quota of home and foreign news given in the *Mirror*.

—We are glad to find the *Cornell Era* recommending the election of the Rev. G. R. Van de Water, of St. Luke's Episcopal Church, Brooklyn, to the board of trustees of its college, in preference to another alumnus, who is a professed infidel. The article on "Vocal Expression," in this number of the *Era*, is a very caustic one; if the case be as the writer states, the article is none too strong.

—We have already called attention to a couple of items of "College News" of a false or dubious character. We find, under the heading "General College News" in *The Chronicle*, an item from *The Independent* stating that the annual expense of a student at Harvard is \$476, while another item under the same heading in the same paper represents Pres't Eliot, of Harvard, as saying that "the lowest sum for which a student can spend a year at Harvard is \$650; and if he wants to live with a far greater degree of comfort he ought to have \$1,300." The question is, which is right, the statement attributed to Pres't Eliot, or that of *The Independent*? or are they both like the stories about the Vassar girls? In this connection it may not be amiss to ask who unearths, or *invents*, the numerous items of "college news" that are so frequently contradicted at the colleges to which they refer? And what reliance can be placed on college news items when so many are liable to contradiction?

—The *Queen's College Journal* and the *Varsity* are at loggerheads on the football question, each claiming the best players. The *Journal* issues a challenge to the Toronto footballers, and hopes they will not "allow themselves to be further disgraced by such petty braggadocio as has appeared in the last numbers of the *Varsity*"; from which it appears that the Canadian football controversy has reached a white heat. Two of the *Journal's* staff have thrown down the pen and buckled on the sword to "soger" against Riel. The *Journal* thinks they are in a good cause. Perhaps; but at this distance the justice of the "cause" appears doubtful, owing to the neglect of the Government to fulfil its former promises to the half-breeds, in the same way that the United States Government neglects its duty to protect our public lands against the foreign land-sharks that are gobbling them up. The *Journal* contains a very interesting article on "Medical Study in France."

—The *Chronicle*, of the University of Michigan,

seems to be greatly exercised at the recent defeat of Judge Cooley for re-election to the Supreme Bench of the State. Judge Cooley was, until lately, at the head of the Law department of the University of Michigan, the duties of which he resigned on account of overwork. The *Chronicle* says:

"He [Judge Cooley] is known and appreciated abroad; his nation is proud of her able jurist, and all lovers of advancement, ability and justice will point the finger of scorn at the people of Michigan. Although I am an ardent lover of American institutions, I come near committing the sacrilege of doubting the advisability of the elective franchise."

The last sentence contains rather strong language, and coming from a leading college paper it is the more remarkable. It is better not to go to extremes. That there are evils in American politics as at present conducted there can be no question, but these evils can be quietly and speedily corrected when the public are educated in sound principles.

—The sixth volume of *Rouge et Noir*, a handsome sixteen-page paper issued by the students of Trinity College, Toronto—whether monthly, quarterly, or how often, is not stated—starts out under exceptionally favorable auspices. The contributed articles in this—the second—number of the volume are, if our memory serves us faithfully, much better than those in the preceding one. Prose and verse alternate, and, according to our way of thinking, are not arranged in the most suitable way. Why Horatio Gilbert Parker's beautiful verses, "The Stars of the Church of God," should be stuck away behind, and the light rondeau on the kiss "Beside the Gate" given first place, is a mystery to us. "To a *Bas-Bleu*" is a good thing of the "Justin Thyme" order, although here the writer signs the very commonplace name of "Walter Rogers." *Rouge et Noir* gives very little local matter, and no Exchange notes—which latter we think a great mistake. The item about the "English clergyman, well known for his manly expression of opinions, which are ranked as 'decidedly high' among his brethren," and "the Romish dignitary [Mgr. Capel] who greeted him with a supercilious drawl," is in very bad taste, and, we think, falsely colored, if not of rather doubtful veracity. Those who know anything of Mgr. Capel know that, under any and all circumstances, he is a gentleman,—in his manner, in his speech, in his writings—and therefore that he would be the last man in the world to greet the commonest fellow-being, much less a minister of the Gospel, with a "supercilious drawl." If the editors of *Rouge et Noir* take the trouble to ascertain the exact truth, we feel confident they will learn their mistake.

—The editors of *The Skirmisher* manage, while off duty, to do a fair share of work, and of a fair quality, for their paper. The article on "Civil Service Reform" is sensible and practical, so far as it goes; but the writer seems to have a false idea of the Government departments and the amount of work done there. If he visits those departments he will find a busy hive of workers, and not the

lounge that he has conjured up in his imagination. Cabinet ministers, and members of Congress especially, are literally worked to death during session time, being often busily engaged in the committee rooms until "the wee sma' hours ayont the twal." If the people's money is squandered it is not in salaries, but in uncalled for appropriations or misdirected exertions for the furtherance of partisan interests, the members of one party trying to frustrate the action of those of the other party, thus squandering valuable time and neglecting public affairs. It is about time the people put a stop to this by electing members of that kind to stay at home. The *Skirmisher's* compliment to President Cleveland and the members of his Cabinet, as working men, is evidently well deserved. Deane's "Tragedy on Toast" is excellently conceived, and well written, and his article on "Intoxicating Liquors" is sound in principle. The Exchange-editor tries to enlighten the *College Index* on the mode of determining the author of an article in the college papers, as to "whether he be a student or alumnus, or a member of the faculty," and says:

"It seems that they could decide by the weightiness of the article. We try to do so; as, for instance, we know that the majority of the matter [articles?] of the NOTRE DAME SCHOLASTIC is contributed by the Faculty. Boys could not write it."

But boys can, and do, write such articles for the SCHOLASTIC as by their weight, or some other incidental circumstance, may cause them to be mistaken for Faculty work. We cited a case in point last week, in which the article of Mr. W. H. Johnston, of '85, was set down by the *Cornell Sun* as the work of a "Professor" Johnston. Similarly, we presume, accepting the *Skirmisher's* criterion, T. J. McKinney's article on "Certitude," Sydney J. Dickerson's "The Right of Property," G. Harry Smith's "William Wordsworth," P. J. Goulding's "Revenue Reform," Charles C. Kolars' "Glaciers," James J. Conway's "The Spanish Inquisition," Charles F. Porter's "Photography," Thos. Ewing Steele's poem, "Alfred Lord Tennyson," W. T. Johnston's "Ocean Echoes," Neal H. Ewing's sonnet on "St. Edward's Day," and many other articles that recently appeared in the SCHOLASTIC, would be set down as "contributed by the Faculty"; but the gentlemen who wrote the articles would probably object to such an arrangement, and they have rights that cannot be gainsaid. The rule will hardly work, *Skirmisher*; try some other.

Books and Periodicals.

THE FIRST STANDARD PHONOGRAPHIC READER.
New and Revised Edition; Stereotyped in the Corresponding Style, with Interpaged Key, and with Notes. By Andrew J. Graham. New York: Andrew J. Graham, 744 Broadway. 1885. 82 pages; cloth, \$1.75; post-paid, \$1.81.

This book is gotten up in a clear, handsome style of phonography, and is printed on fine toned paper. The selections, and the phonographic part of the work, especially, bear evidence to the most

painstaking care in all the details of editing and preparation. The tracing of the outlines is clearly the work of a master hand. These outlines are engraved, not lithographed, and are finely printed, thus preventing the annoyance frequently experienced in deciphering ill-formed and blurred outlines that in the hands of the printer deteriorate into an almost illegible scrawl.

In Mr. Graham's magazine and books we hardly know which to admire most, the excellent judgment and unexceptionable taste of the selections, or the wonderful phonetic analysis and patient toil shown in the phonography itself, reaching the most minute details and elaborating them as if under the power of the microscope. The analytical spirit of the copious notes appended to the exercises in this First Reader are well adapted to give the student a correct idea of the principles of the art which he has engaged to master. For self-help, especially, the book is an admirable one, but for students under a teacher there is too much of the old-time, round-about style that must be discarded as the student advances, but which has a tendency to cling when it is no longer wanted.

Personal.

—Charles Ackhoff (Com'l), '74, is Ass't Book-Keeper in the large Music Store of Root & Sons, Chicago.

—Amedeus Coghlin, of '74, is doing well in Toledo, Ohio, where he holds a prominent position in one of the National Banks.

—Gardner Castanedo (Com'l), '70, still resides in the Crescent City, where he holds a high position in a large commercial establishment.

—We learn from a reliable source that our genial friends, Dan Dennehy, of '72, and T. Semms, of '80, have entered the matrimonial state. We proffer our congratulations and best wishes.

—The many friends of Captain Judson A. Fox (Com'l), of '70, were glad to greet him during his flying visit to Notre Dame last Sunday afternoon. Mr. Fox is now a popular Conductor on the Atlantic and Eastern Railway.

—We are glad to learn that Mr. James Marlette, of '83, who, on the occasion of his recent visit to Notre Dame was suddenly called home to Vicksburg, by the news of the burning of his stores, has resumed business and is as active and prosperous as ever.

—Among the visitors during the week were: Miss Mary A. Nock, Miss Sallie E. A. Meehan, Covington, Ky.; Mr. Soliman Rose, La Grange, Ind.; Mr. Jacob David, New York; Mrs. Macke, Cincinnati, Ohio; Mr. and Mrs. J. Mainzer, St. Paul, Minn.; Mr. Thos. McGill, Mrs. W. J. McMullen and Mrs. P. N. Jones, Chicago, Ill.; C. N. Fassett, Editor *Register*, South Bend.

—The art critic of the *Chicago Inter Ocean*, May 3d, writing of several paintings by Signor Gregori on exhibition in that city, says: "At O'

Brien's gallery, among the many new and attractive features are two beautiful oil paintings by L. Gregori that for exquisite color and careful finish really merit the closest inspection. One is a news-boy, and the other is entitled 'A Confiding Heart.'

—George E. Clarke, of '83, delivered an able and interesting lecture on "The Poets and Poetry of Ireland" at the South Bend Opera House, last Thursday evening. The hall was well filled with an attentive and appreciative audience who were greatly impressed by the speaker's words. Mr. Clarke now holds a responsible position with the Studebaker Manufacturing Co., and is one of the prominent citizens of our neighboring city.

—Franklin P. Dwyer, of '70, and wife, were welcome visitors to the College on last Thursday. Mr. Dwyer passed the last four years of his college life at Notre Dame, and was a model student—active, industrious, and talented; a favorite alike with the Professors and his fellow-students. He now resides at St. Paul, Minn., where he occupies the position of Freight Agent of the Northwestern R. R. His many friends at Notre Dame were pleased to see him and to know of the success which is attending him.

Local Items.

—Let us have more of Shakspeare.

—The dude still sticks to his ulster.

—"Triple Competitions" are next in order.

—William Daly has the lead for the Mason Medal.

—The flower fiend is at large in the parks and gardens.

—Advice to the players:—"Be not sparing of applause."

—"Who η θ π? φ ς, I'd a λ." "Oh! γ: you wouldn't β!"

—Our friend John says, "Surveying before spectators makes one nervous, you know!"

—May flowers now bloom upon the lapels of our dudes' cutaways in rich profusion.

—The owner of that cat is a skilful fisherman. He made an excellent haul on Thursday.

—The press notices of the Shakspearean entertainment on the 29th ult. have been very flattering.

—Matthew Clark is the champion penman of the Juniors, and all agree that he will win the medal.

—Who will get the medal in the Composition Class this year? Our friend Gus. says he has a good show.

—"Charley" looms to-morrow night as the friend (?) of the festive bank cashier who took a trip to Canada.

—St. Edward's Park presents quite a bright appearance these May days with its myriads of gay-colored *crocuses*.

—The "Grads." are beginning to devote their attention to study of Art in modern drama. Their first investigation failed to discover any.

—The baseballist has exhausted his supply of invectives against the bad weather, which, in his opinion, seems to come invariably on a "rec" day.

—Harris and Wabrauschek, of the Commercial Department, lead the van in type-writing. Harris is also somewhat of an expert in the hooks and crooks of phonography.

—Prof. William Hoynes spent the greater part of last week in Chicago, where he was engaged in an important law-case. We are pleased to hear that the Professor's skill and talent gained the victory.

—The twenty-one Minims who are preparing for their First Communion had the privilege of hearing some beautiful words on the all-important subject from Very Father General, last Wednesday.

—At the 18th regular meeting of the St. Cecilia Philomathean Association a very interesting debate on the "Results of the Crusades" took place. Masters T. Cleary and J. Monschein were the principal speakers.

—Master Jos. Garrity, of the Junior, and Mr. W. E. Ramsay, of the Senior Euglossians, prefaced Mr. Clarke's lecture by the presentation of some fine selections at the Opera House, South Bend, last Thursday evening.

—There will be a case tried before the University Moot-court to-morrow evening. Messrs. Finlay and D. Byrnes will represent the state, and Messrs. M. Burns and Wilson, for the defense. The trial promises to be an interesting one, and all are invited.

—The *Aurora* (Antigonish, N. S.), noticing "Better than Gold," a recent issue of the *Ave Maria* series, remarks: "Everything that comes from the *Ave Maria* press has upon it the stamp of good taste and sound judgment as to what the public needs."

—The walls of the class-rooms are being tinted in the several shades recommended by oculists for the preservation and comfort of the eyes. Besides this, they are receiving other embellishments, in the shape of paintings and engravings, which tend to give them a very attractive appearance.

—The Minims are very grateful to Very Rev. Father General for the gift of a beautiful gold heart—typical of the Immaculate Heart of Mary—brought from Paris. It is now suspended on the statue of the Blessed Virgin on the May altar in the church, where it will remain an *ex-voto* from the Minims.

—The 18th meeting of the Columbian Association was held on the 5th inst., Messrs. Wagoner, O'Kane, Chapin, Hotaling, White, Harless, Maguire, De Groot and O. Ryan conducted a symposium on the "Evils of Intemperance." Mr. M. Burns read a well-written criticism on the proceedings of the previous meeting.

—The youngest child of Mr. P. F. Garrity, of Chicago, now at Notre Dame with his mother, is named Leo, and he is the thirteenth member of this interesting family. This gave occasion to the *bon mot*, a few days ago, that Leo XIII got his first short clothes at Notre Dame, and such really appears to be the case.

—The Senior members of the choir, accompanied by Rev. M. Robinson, C. S. C., opened up the picnic season by a trip to the "Farm" on last Thursday. They report having had a most enjoyable time, and return thanks to the Rev. Prefect of Discipline, for his efforts in contributing so greatly to the pleasure of the trip.

—In the report of the Shakspearean entertainment last week, several names deserving of mention were unintentionally omitted. In the act from the "Merchant of Venice," Messrs. W. E. Ramsay as "Antonio," H. Paschel as "Bassanio," and C. Paschel as "Nerissa," distinguished themselves in the rendition of their parts.

—By mistake the name of Leo M. Scherrer, who took the part of "William" in the "New Arts" with credit to himself, was omitted from the list of names that deserved honorable mention; next in the order of merit came F. H. Crotty, as "James," A. J. McVeigh, as "Judge Fairbanks," and J. Baker, as "Master Julius, an exceptionally polite boy."

—A few days ago we were shown a large cabinet-size photograph of the interior of the reception-room attached to the Minims' reading-rooms. It was taken by one of our amateur photographers, and is very well executed. A group of happy "Princes," seven (7) in number, with their chief Prefect may be seen in graceful positions in the well-furnished chamber.

—Messrs. C. Arce and F. P. Alvarez have added to their other photographic equipments a splendid instantaneous camera and a burnisher. They have already taken some good views of the buildings, groups, etc., the best of the latter being that of the Shakspeareans, grouped on the stage after their last play. Prof. Ackerman's splendid stage scenery shows to admirable effect in the picture.

—On the 5th inst., a meeting was held of the Junior B. B. A. J. Dorenberg and G. Menig were elected captains. The following nines were chosen: **WHITES:**—J. Dorenberg, Captain; E. Benner, G. Myers, H. Robinson, G. Cartier, F. Fehr, J. Kelly, C. Harris, S. Holman; E. Dillon, Substitute. **REDS:**—G. Menig, Captain; J. Courtney, G. Cooper, F. Hagenbarth, C. Stubbs, P. Johnson, W. Wabraushek, F. Shaw, E. Schmauss; E. Porter, Substitute.

—All within the camp have at last compromised. We feel proud to say that, since the Hellenist refused to part with his moustache, to take the part of "Trophos" in the Medea of Euripides, the one whose rôle in the play was to be "Creon" will gladly exchange characters. As the arms of "Trophos," he says, are to be of considerable length,

he thinks he can act his part better by bearing the "striplings" of Medea than by personating the character of an old man.

—Messrs. Crescencio Arce and Francisco P. Alvarez, of the Senior department, have among other samples of their photographic work with the instantaneous camera a picture of the two little Misses McVeigh, of Covington, Ky., with their two *burros*, from which apparently they have just dismounted. The picture was taken while the little girls were on a visit to Notre Dame, with their mother. The *burros* have taken well, and present a comical appearance, contrasting wonderfully with the two merry little girls.

—The ninth regular meeting of the Sorin Literary and Dramatic Association was held in Edward's Hall on Monday, May 5th, at which compositions were read by the following young gentlemen: E. Kelly, F. Weston, J. Doss, E. Berry, H. Blakeslee, I. Bunker, W. McPhee, C. O. Inderrieden, B. O'Kane and J. Kelly. W. McPhee's composition on "Notre Dame" was especially deserving of praise. After the business of the meeting was transacted, the proceeding closed with an address from the Chair.

—An interesting session of the University Moot-court was held on the 2d inst., Judge Hoynes presiding. The case involved some nice points of law, and was well conducted on both sides. H. A. Steis appeared for the plaintiff, T. E. Callahan for the defense. The witnesses for the prosecution were J. D. Wilson and Chas. Finley; for the defense, J. Conlon and P. J. Goulding. The jury, consisting of Messrs. Otis, Burke and Reach, after a few minutes' consultation returned a verdict in favor of the defendant. M. Burns acted as clerk of the court. This is the last case that will be tried until the June term.

—Following is the programme of an entertainment to be given by the Scientific Association in Washington Hall, in a few weeks. It will be followed by others, the object of which will be to illustrate by simple and interesting experiments various scientific facts.

FIRST EVENING'S ENTERTAINMENT:

Prologue.....	F. H. Dexter
A Glass of Water.....	C. Kolars, A. Ancheta
The Illuminated Fountain.....	J. Guthrie
The Lantern.....	C. Kolars
Optical Illusions.....	W. Johnston, G. Smith
The Magical Shilling.....	C. Porter, M. Dolan

—The Librarian acknowledges the receipt of the following gifts to the Lemonnier Library Association: From Judge A. Hagan, of Chicago, "Sketches of the Irish Bar," by Richard Lalor Shiel, 2 vols.; from a Friend, "The Fair God," by Lew Wallace; "Ben-Hur, A Tale of the Christ," by Lew Wallace; "Anecdotes of the Arts in England," Illustrated by Specimens at Oxford; "Elegant Extracts of Poetry," Hartford, 1818; "L'Abbé de L'Epée, Comedie Historique en Cinq Acts," par Bouilly; "Songs and Carols from a Manuscript of the Fifteenth Cen-

tury," Edited by Thos. Wright; "Visits of Mercy to the Hospital and Alms-house in the City of New York," 1811, by the Rev. E. S. Ely; "Marie; Ou le Veritable Esprit du Dante," par M. Professeur au College Royal de Laval; "Notice sur Notre Dame D'Avénieres"; from James Marlett, of Vicksburg, Miss., \$10.00; from Mrs. S. G. Scravendyke, Philadelphia, Pa., "Life of St. Theresa," Translated from the French of Marie Joseph, by Anna Porter; "Life of Sister Saint Pierre," from the French of Janvier, by Henri Le Mercier de Pombiray; "The Miraculous Medal," from the French of Aladel C. M., by P. S.

—The other day, one of our friends, who, by the way, is of a very æsthetic disposition, started out for a bicycle ride. The mount was successfully made; off he started at a smooth, sylph-like pace and as he rolled serenely on, mentally congratulated himself upon his success as a bicyclist. "But then," he murmured to himself, "I was always pretty good at 'catching on' to things that generally bother other unfortunate mortals." But ah! he reckoned without his host. Absorbed in reflections as to what a nice figure he must cut on a wheel, etc., etc., etc., he had not noticed that he was rapidly approaching a steep, winding hill which descended abruptly and with a grim reality to the lake's edge. Our friend will try it. There he goes gracefully down the incline—he blissfully realizes that this is indeed the *poetry of motion*—faster, faster; on he flies with hair on end, making a bee-line for the lake. He grasps his machine with the desperation of despair, he becomes faint, he knows it must come—bang, chebunk—splash—sh-splash! Heavens! he has taken a header in the lake. With a mouth full of water, a black eye, and a broken bicycle he drags himself to *terra firma*, thinking that life is all a farce and happiness a delusion. He told no one of the event, but "Oh, what a fall was there!" DON PEDRO.

—EXTRAORDINARY INSTANCE OF PALINGENESIA.—Some Professors of Theology are partial to giving practical examples of the dogmas they teach, with a force that almost deprives faith of its merit. To such will be acceptable the following remarkable illustration of the Doctrine of Regeneration, which we find in the columns of an esteemed contemporary. The interesting subject of the notice appears not only to have been born twice, but to have been married contemporaneously with her birth on one occasion. We quote as follows:

"Mrs. Sadie ***, née Mrs. Frank ***, née Miss Sadie ***, daughter of ———, died at her home in ——— City last Monday morning of consumption."

Were we a punster—which, thank Heaven, we are far from being,—and were we not aware of the high reputation for accuracy enjoyed by the authority we quote, we should feel tempted to say: "Nay, not so, friend." And in spite of all we can say to the contrary, there will still be infamous skeptics who will declare that it sounds more like a bray than a neigh.

MARSHAL NEY.

Roll of Honor.

[The following list includes the names of those students whose conduct during the past week has given entire satisfaction to the Faculty.]

SENIOR DEPARTMENT.

Messrs. Arce, Ancheta, Browne, Baca, Becerra, M. Burns, D. Byrnes, Breen, F. Burke, V. Burke, Conlon, Walter Collins, Chapin, Crawford, Creel, F. Combe, Cusack, Cartier, Campbell, De Groot, Dwan, Dexter, Estrado, Finlay, Flynn, Goulding, A. A. Gordon, Guthrie, Garcia, Goodfellow, Gould, Horn, Hamlyn, Halligan, Howard, Hausberg, Hasson, Hutchison, Kolars, Kleiber, Kavanagh, Keys, McMillian, McGuire, Meyer, McErlain, McCartney, McMurray, Marion, Mathers, Miller, Jno. Murphy, O'Kane, O'Connell, H. Paschel, C. Paschel, Perley, Padilla, P. Prudhomme, H. Porter, C. Porter, Rothert, Reach, Rice, Rahilly, Ruppe, T. Ryan, Roth, G. H. Smith, Sheridan, Steis, Shaffer, Saviers, Snapp, Triplett, Jno. Troy, J. S. Troy, W. Williams, Wagoner, A. Williams, White, Wilson, Woodbridge, Werst, Zeitler.

JUNIOR DEPARTMENT.

Masters Arts, Amoretti, Borgschulze, Berthelet, Barke, Congdon, Clarké, Colina, Cavaroc, Chute, Dillon, Dempsey, Dorenberg, Donnellan, Daly, De Haas, Darragh, Day, Devine, Ewing, Finck, Fehr, Flood, Grunsfeld, L. Grever, E. Grever, Hoyer, Howard, Hibbeler, Holman, Houlihan, Hagenbarth, Johnson, Kegel, Kenny, Luther, F. Long, Loya, Lewis, Levin, Martinez, Mulkern, V. Morrison, McCourt, B. Morrison, R. Morrison, Monschein, Menig, Myers, Mullane, Macke, Meehan, McGuire, Nester, Nussbaum, Oxnard, O'Kane, Portillo, Prudhomme, Regan, Real, Rose, Rattigan, Rebori, Rufing, Remish, Reynolds, Rogers, Robinson, Ryan, Rietz, Stubbs, Senn, Soden, F. Smith, Stange, Spencer, Shaw, Sedberry, Servis, Talbot, Tarrant, Thurston, Thompson, Vanselow, Wabraushek, Warner, Zollars, Benner.

MINIM DEPARTMENT.

Masters Ackerman, Berry, Bull, Blakeslee, Baker, Crotty, Campau, Cobbs, Chute, F. Dunford, L. Doss, Ernest, E. Falvey, Grunsfeld, Haney, Hopkins, Jones, E. Kelly, Landenwich, McPhee, McVeigh, Morgan, McCourt, Moncada, McNulty, McGuire, Mooney, Nussbaum, J. Peck, Peil, Piero, Paul, Sweet, Stone, Shöneman, Scherrer, Weston, Bloomington.

List of Excellence.

[The students mentioned in this list are those who have been the best in the classes of the courses named—according to the competitions, which are held monthly.]

COLLEGIATE COURSE.

Latin—Messrs. Sheridan, J. Burns, J. Wagoner, Kleiber, Dickerson; Greek—Messrs. Cleary, G. H. Smith, Kleiber, Wagoner; Moral Philosophy—G. Smith; Logic—Messrs. Wilson, Goulding; English Composition—Messrs. Spillard, De Groot, H. Long, Kelly, Congdon, Marion, Ewing, Rogers; Rhetoric—Messrs. M. Burns, V. Morrison; English Literature—Messrs. Goodfellow, Baca, Cartier, Courtney, Halligan, Hausberg, Howard, Kleiber, Reach, Combe, Mulkern, O'Connell, Hagenbarth, Porter, Stubbs; Criticism—Messrs. Conlon, Wilson, Byrnes, Mathers, Kavanagh, Sheridan, V. Burke, Dolan, Callaghan; History—Messrs. Dexter, Kleiber, Mulkern, Daly, Byrnes, W. Morrison; Algebra—Messrs. Rothert, V. Morrison, Daly, Reynolds; Geometry—Messrs. Daly, Mulkern, Mason, Marion, Ewing, Tully; Trigonometry—Messrs. Rothert, Hagenbarth, Cartier; Surveying—Messrs. A. Ancheta, Cartier, Courtney; Descriptive Geometry—Messrs. Conway, C. F. Porter; Calculus—A. Ancheta; Analytical Mechanics—C. Kolars; Astronomy—A. Ancheta; Botany—Mr. Rothert; Zoölogy—Mr. Rothert; Geology—A. Ancheta; Physics—Messrs. Ancheta, Sheridan; Chemistry—Messrs. Ancheta, Sheridan, Johnston, Kolars; Civil Engineering—Messrs. Guthrie, Kolars; Church History—Messrs. Hagenbarth, Dexter, Ancheta.

Saint Mary's Academy.

One Mile West of Notre Dame University.

—The monthly Adoration of the Blessed Sacrament took place on the Feast of the Finding of the Holy Cross. All the Catholic pupils approached Holy Communion at the early Mass.

—The opening of the May devotions on Wednesday evening was conducted by Very Rev. Father General, who preached on the occasion, giving voice to his exceptional zeal for her honor.

—In the competition of the Second Preparatory Grammar Class those who deserve particular mention are the Misses White, Norris, Searls, Mary Murphy, Murray Schmauss, Hawkins, and Stull.

—At the regular Academic reunion, by a not unprecedented coincidence, the selections were all from Miss Eleanor C. Donnelly. The readers were the Misses A. Donnelly, S. St. Clair and M. Fuller. The last-named read the beautiful poem "Our Lady of Good Counsel, at Genazzano," and in a manner well worthy of the rich composition.

—Cordial thanks are extended to kind friends at St. Edward's Hall for a photograph of the grand tableau "The Triumph of the Holy Cross." The various implements—as the inscription, the nails, the spear, the pincers, the hammer, the ladder, the sponge, the cords, the scourge, the winding sheet—were all well taken. The cross, chalice, and crown of thorns are not as distinct as might be wished, but the unity of design and the noble idea of the picture are well represented.

—On Sunday last an eloquent sermon was preached at Vespers by Rev. Father Cooney, on the festival of the day, namely, the "Finding of the Holy Cross." By analogy, the instinct which gives to the Cross its predominance in the Christian heart, was proved, as no more than what should be looked for. The history of the luminous cross which appeared in the heavens to Constantine the Great and his army, and which caused the Labarum to supersede the Roman eagles, was graphically presented, as was also that of the pilgrimage of the Empress Helena to Palestine and her discovery of the sacred relics.

—Three o'clock on Saturday gave the signal for recreation in honor of the opening of the month of May. The princesses made good use of the time, and in a delightful woodland ramble, gathered the exquisite anemone, and other wild flowers. Of these buds and blossoms two perfect garlands were woven, and the happy children returned to their unpretending, but very dear, "Palace"; the statue of the Blessed Virgin was placed in a convenient position; a temporary oratory was formed, and to Alice Schmauss, as the oldest of the Minims, was accorded the honor of crowning the statue and of placing the garland at her feet, amid the singing of a sweet hymn in honor of Mary, Queen of May. The simple but sincere ovation was edifying

to behold, and daily the coronation is to be repeated throughout the month of May, so that, in her regular rank, each princess may enjoy the happiness of personally contributing her share in showing her love for the Mother of the world's Redeemer.

—The Children of Mary listened to a characteristic and most valuable instruction from Very Rev. Father General on Monday morning. He reverted to the feast of the day previous, and made it the subject of his discourse. Among other important reflections, he explained the providential wisdom which concealed the sacred instrument of our redemption—the true Cross—during the entire period of the great persecutions. Otherwise the malice of bigotry would have scattered it to the four winds. The pagans supposed they had, by hiding the precious treasures, the implements of the Passion, completely obliterated their existence from the minds of men. But the Supreme Intelligence who causes "the wrath of man to praise Him," had but made them agents of their most complete preservation. With Constantine, Christianity was victorious. His mother St. Helena was deemed worthy to search out, exhume and identify these priceless treasures. The Cross, formerly a sign of the deepest ignominy, from that moment forth became the symbol of all most honorable and holy. Stress was laid upon the manner in which we should make the Sign of the Cross. Father said that when Our Blessed Lady appeared to Bernadette, she taught her, the first thing, how to bless herself. Slowly, with a heavenly gravity, she performed the action, and said: "This is the way they make the Sign of the Cross in heaven."

Study.

BY HENRIETTA KEENAN.

In the word "study" something beyond the memorizing of text-books and the taking down of notes from lectures is to be understood. It is that close application of the mind to the subject under consideration, and the mastery of that subject, which mastery may be wanting in even a *verbatim* rendering of the lessons. A parrot might be taught to recite a few words from St. Thomas, but it takes the master-mind of a Vaughan to *study* his life and character. A school-girl may quote pages of Dante, and yet be in reality as ignorant of the great poet and his style as one who had never heard his name. Her memorizing, if mechanical, cannot be dignified with the name of study. The understanding is exercised in study.

One, to justly claim the title of student, not only applies herself to the gaining of knowledge during the few years she passes at school, but her ardent wish would be to study as the occupation of a lifetime: yes, of many lifetimes, if God were to bestow such upon her. But in our superficial times thorough students are (we had almost said of *necessity*) rare. The candidate for scholastic honors asks herself, not, "how can I possess my-

self of the most complete education?" but, "how can I get through the study of many branches in the 'shortest possible time?'" But is it not far more satisfactory to know six branches perfectly than forty-eight imperfectly? Yet we find that the person who has a smattering of the forty-eight is regarded as a sage, while the master of the six is very fortunate if he be not counted sometimes as absolutely a fool?—an interpretation of terms worthy of an age that sees only the surface of things, and deifies nothing so cordially as mere worldly popularity.

The real secret of the empty counterfeit of education so prevalent, and which we so much deplore, arises from the shallow idea that school life must not exceed a stated number of years, and when the daughter is eighteen she must be launched into society, even if she does not know what part of speech superficial is, or if she be unable to tell how much two and a half yards of ribbon cost at thirty cents a yard. "It would indeed be a disgrace to the family to keep Annamarie at school another year," say the worldly wise elder members, "for she will be nineteen her next birthday;" and, rather than stigmatize the honorable race, the "educated young lady" enters upon a new phase of her existence—society life.

This mockery of education explains the hollowness, nay, the very disorders, which are everywhere startling the wise and true. Of young men and women who have never submitted their mental faculties to discipline nothing but thoughtlessness can be expected.

When the close relation of the sciences to one another is regarded, the folly of limiting the time of education is apparent. The would-be musician who cares to know nothing of the science of numbers, cannot grasp the science of music. Leave the principles of ethics out of the investigation, set logic to one side, ignore the visible hand of an over-ruling Providence in the "Philosophy of History," and the learner may have Plutarch, Rollin, Gibbon, Prescott, and even the waverly novels, word for word, at her tongue's end, and, in the summing up of her qualifications, she may be no more of an historian than an auctioneer is a millionaire: The crying of an article is not the possession.

Not one, but several sciences rest upon mathematics as their basis, and the deeper the investigation, the clearer to be seen is the dependence of one branch upon the other; and yet a young girl who from abridgements of these sciences—her textbooks—has learned a few technicalities, fancies she has all that is necessary to constitute her as one "liberally educated." The higher education! What is to be hoped for it when love of study is almost as rare as an even climate in the Northwest?

When candidates for scholastic honors are also candidates for scholastic excellence; when the number of thorough students closely approximates the number of those who enter our institutions of learning, we need not fear success to "the higher education." To quote Roger Bede Vaughan "He who has a pure heart loves truth. The contem-

plation will be clear in proportion as the heart is pure; and the heart will be pure as the spirit is humble." And can the humble Christian student rest when her advantages are not communicated? Will she be likely to enter upon the career of folly that marks the trifling pleasure-seeker? No: Domestic peace, home joys, rational pleasures will give her time for study. Her graduating medal will be her reminder that she has the honor of her *Alma Mater* at stake. Her home-circle will be a little sanctuary of tranquil, prayerful life. In such home-circles, the nurseries of the "higher education" will be found. Without them there will be no supply.

Roll of Honor.

FOR POLITENESS, NEATNESS, ORDER, AMIABILITY, CORRECT DEPARTMENT, AND OBSERVANCE OF RULES.

SENIOR DEPARTMENT.

Par Excellence—Misses M. Adderly, Allwein, M. Bruhn, Brady, Bubb, E. Call, Carney, S. Dunne, A. Donnelly, E. Donnelly, M. Dillon, B. Dwan, B. Gove, Griffith, Gavan, C. Ginz, A. Gordon, A. Heckard, B. Heckard, Hutchinson, Hale, Helpling, Keenan, Kearsey, Kearney, Kearns, Lange, T. McSorley, Murphy, O'Connell, Ramsey, Rose, Richardson, Sheekey, M. Scully, C. Scully, Sharrette, Stull, Schuler, S. St. Clair, L. St. Clair, M. Shea, C. Schilling, Thornton, L. Walsh, E. Walsh, White, Walker. *2d Tablet*—Misses Barlow, Cox, Carmien, B. English, Fuller, Fitzpatrick, O'Halloran.

JUNIOR DEPARTMENT.

Par Excellence—Misses O. Boyer, B. Erlenborn, F. Hertzog, A. Keyes, L. Norris, C. Prudhomme, E. Preston, C. Richmond, G. Regan, E. Sheekey, B. Snowhook, G. Searls, G. Stadtler, M. Smith, L. Trask, L. Van Horn.

MINIM DEPARTMENT.

Par Excellence—Misses E. Blaine, E. Burtis, E. Chapin, M. Hopkins, E. Hammond, F. Johnson, M. Lindsey, D. Lee, B. Murray, A. Schmauss, F. Spencer, S. Van Fleet.

ART DEPARTMENT.

HONORABLY MENTIONED.

FIGURE-DRAWING.

2D CLASS—Misses Fuller, English, Fehr.

ELEMENTARY PERSPECTIVE.

Miss C. Lang.

PAINTING IN WATER-COLORS.

Misses Trask, Stadtler, Keyes.

PAINTING ON CHINA.

Misses Shephard, Richmond, L. Van Horn.

OIL-PAINTING.

2D CLASS—Misses Heckard, Sheekey, Dunne.

3D CLASS—Miss M. Fuller.

2D. DIV.—Misses Munger, E. Walsh, Kearney, McSorley, Addie Gordon, Alice Gordon, McHale, Hawkins, S. St. Claire Schilling C. Scully.

GENERAL DRAWING.

SENIOR DEPARTMENT.

Misses C. Griffith, M. Hale, E. Donnelly, A. Donnelly, E. Walsh, Walker, Thornton, Schilling.

JUNIOR DEPARTMENT.

Misses Stadtler, Trask, Keyes, Johnson, Quill, McEwen, Hertzog, Prudhomme, Spencer, Murphy, Preston, Norris, Lindsey, Schmauss, V. Balch, T. Balch, Smith, Boyer, Brown Campeau, T. Haney, Van Fleet, Chapin, Burtis, E. Blaine, Hammond, Lee, Hopkins, Servis, Erlenborn, Allen, Barney.