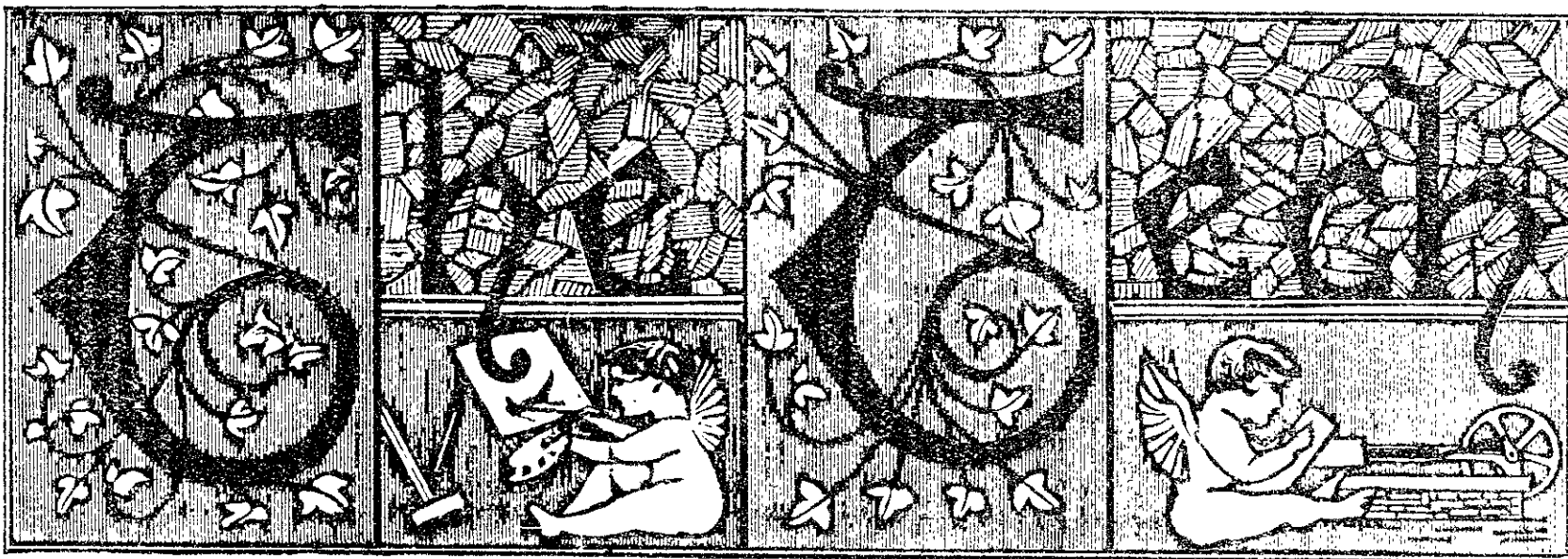
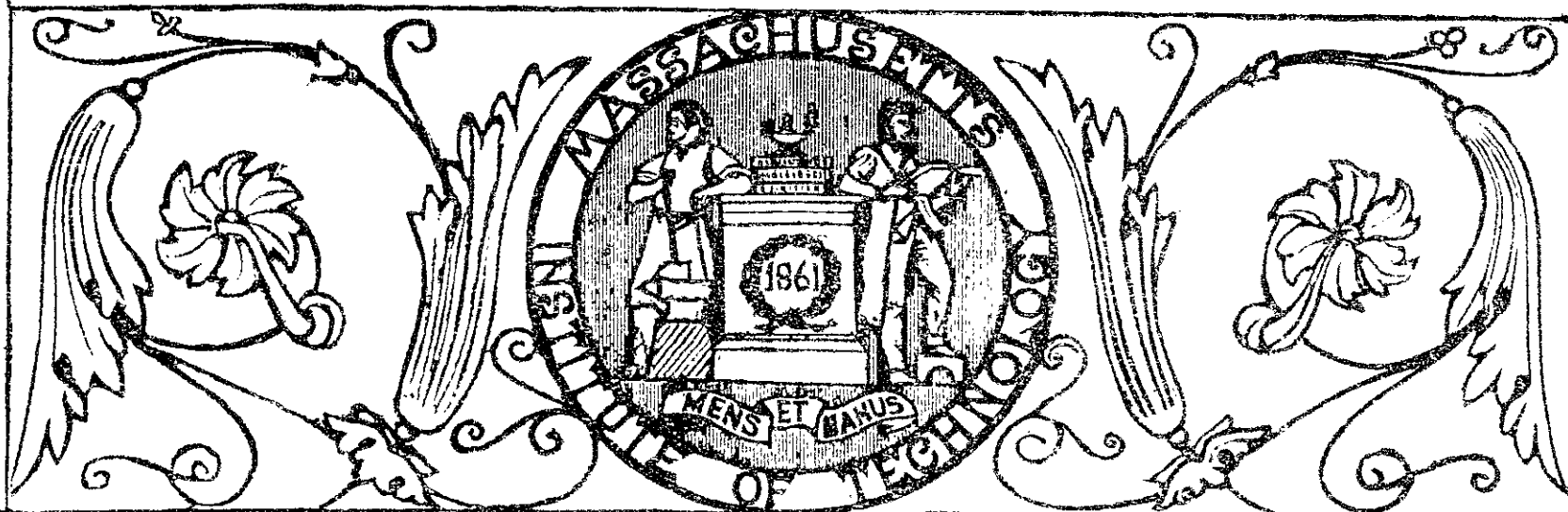




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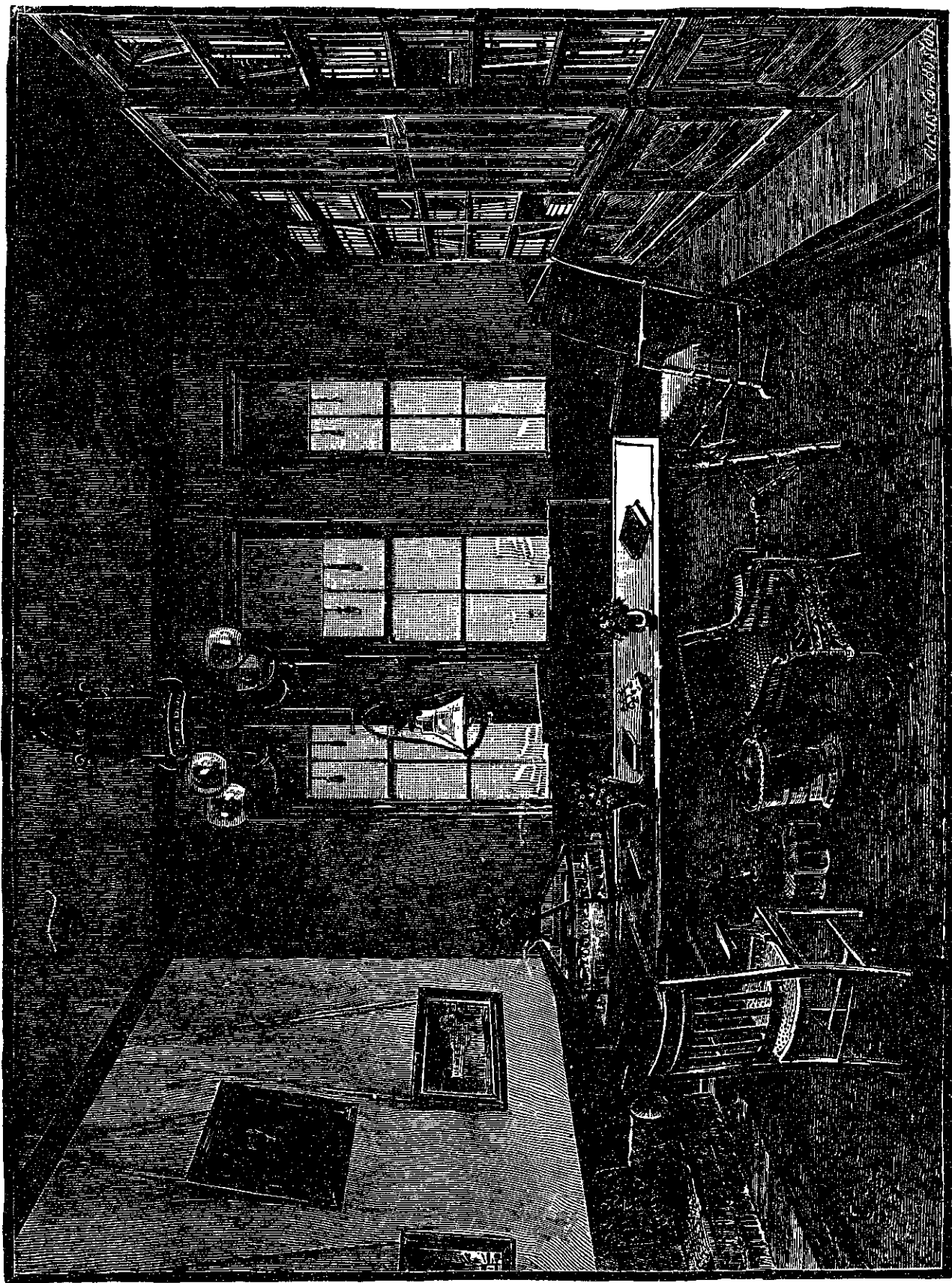
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THE MARGARET CHENEY READING-ROOM.

The Tech.

VOL. III.

BOSTON, APRIL 23, 1884.

No. 14.

THE TECH.

Published on alternate Wednesdays, during the school year, by the students of the Massachusetts Institute of Technology.

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WHILE the Faculty, we understand, are engaged in an attempt to relieve our overcrowded courses, we will take the liberty to suggest a change which would do something toward that desideratum. The second term of the second year is, perhaps, the one which is most

abundantly supplied with studies. Some of the courses in that term have thirty and thirty-two hours, out of the thirty-three allowed, taken up by recitations, lectures, and work in the shops, field, and laboratory laid down on the tabular view. One of the studies which the whole class is obliged to take is physical geography, which requires three hours a week for lectures and three for outside preparation. Now why cannot this be transferred to the first year? The study is neither difficult nor too deep for Freshmen, and the first year is not so very crowded with

studies that this would make very much additional work, while it would do much toward relieving the second year. If, in the opinion of the Faculty, it is necessary for an architect, a mechanical, or a mining engineer, to be able to tell how many continents there are, or to define a river or a mountain, why, by all means let us acquire this information, but let us do it among the preparatory studies of the first year.

BEFORE entering upon the last long grind for the "annuals," while the mind is yet open to outside suggestions, we desire to impress upon the well-wishers of the TECH, and upon the students in general, the fact that during the summer many of them will undoubtedly enter upon work or pleasure, or visit localities and establishments, reports of which would prove (properly written up) of interest to the readers, and a substantial aid to the life of the "organ" of this institution.

Let us hope that this will be borne in mind, and that thus THE TECH will be rich in interesting original articles next fall. This is, in our opinion, the true field of work for the paper, and the increasing use made of it by the students is encouraging, and will result in the formation of more careful habits of writing, and facility in expressing one's ideas tersely and clearly.

EIGHTY-FOUR'S course is almost finished. In little more than a month the last '84 cheer within Institute walls will have been given, and the members of this class who have worked together side by side for four years will disperse, some of them, probably, never to meet again.

It is true that the Institute affords less amusement and social intercourse than do other col-

leges, but as time goes on we think that every graduate will regard the discipline of his stern *alma mater* with more favor than he does now as a student buried in its absorbing work, just as the dweller under the shadow of a high mountain does not realize its height or its beauty until he has left the shore, and sailing out into the great ocean sees the mountain loom up more grandly as he recedes from it.

It seems, therefore, fitting that each class which has graduated should have at least one annual reunion, where as many members as can should meet together for "old acquaintance' sake," and on familiar ground discuss the scientific questions of the day. Some of our graduates will certainly become famous in the world of science, and it will be interesting, indeed, to recall this and that event of student life or the chance impulse which turned their minds to the work which has made their names renowned. These reunions can only be carried on through class organizations, properly officered, and holding stated meetings. If the duties of the secretary be properly managed, information can be kept of the occupation and whereabouts of all members of the class, and any items of interest concerning them, all of which should be freely accessible to other members. In an institution like ours, turning out men of all professions, its graduates will be very widely scattered all over this country and abroad, and meetings should, therefore, be held in the most central place. We think, however, that Boston has usually been thus chosen. It seems to us that membership to these organizations should not, as has sometimes been done, be confined to those having obtained degrees, for to exclude from a class organization a man who has been identified with that class for four years, simply because he is not classed officially as an alumnus, is adding a seeming insult to injury. Moreover, these men are the very ones concerning whom information is always most difficult to obtain. It might be thought advisable to let the regular alumni constitute the nucleus of the organization, and have them take in the others individually.

We would respectfully offer these remarks to

'84, which we believe has as yet no permanent organization, and make the suggestion that a meeting to form such an organization, held just after the last examination, and before the class breaks up, would be of unusual interest, and would undoubtedly be largely attended.

AS the year draws to a close, and the lower classes look forward, through a perspective of midnight toil and perplexing examinations, to the well-earned vacation, '84, through a like perspective, sees itself approaching the jumping off place described in the catalogue as "degrees conferred," those final exercises conducted in a manner so strictly in accordance with the practical, undemonstrative character of our busy Institute life.

We are not unmindful of the sad farewell tendered to '82, and the thoughts it must bring on future graduation days to all who cherish memories of President Rogers; but is it not a fact that this final ceremony is, at the Institute, noticeably devoid of many points of interest which would be expected to characterize so important an epoch in a young man's life? Of course there is good reason for this, the seniors have been struggling with their theses, which in addition to all other work, have left little time for the preparation of essays, poems, and class histories, if indeed our class histories are worth the writing; the natural result is that the entertainment at graduation consists of selections from the highly scientific and technical theses, unintelligible to most of the hearers, and of addresses by some of the Faculty, which, though spoken with the heartiest feelings of personal interest and good-will, cannot altogether offset the general coldness, as compared with the final exercises, suppers, dances, and other enjoyable excitement indulged in, on such occasions, by some other institutions of learning.

We think if the musical element, which seems to flourish in our midst, could be introduced at this ceremony with other "divertisement" it would be likely to increase the enjoyment to both visitors and students and leave pleasanter memories of the long anticipated event.

The Study of the Natural Sciences.

(Conclusion)

(3.) Microscopic observation is that pursued by means of the microscope and its multitudinous accessories. Its objects are so minute as to escape the powers of the keenest human eye. But, aided by the powerful lenses, contrived by science, and directed by trained minds skilled in scientific methods, microscopic research has opened to man vast fields for observation, and furnished food for intense thought.

The microscope enables us to explore the mysteries of microcosmic worlds, to witness the gambols of myriads of infusoria in a single drop of water, which, to them, is many times greater than is the ocean, to the gigantic cetacean.

In a drop of water we may witness the birth, life, and death of ephemeral beings, all of which may take place in less time than it takes to record it. To the microscope's power we owe the resolution of the eye of the common house-fly with its numerous fascets, each capable of vision. To it we owe the discovery of the structure, functions, and uses of the different members which constitute the skeletons of insects.

By it we can study the digestive, muscular, nervous, and circulatory systems of organisms that to us would remain a sealed book without its assistance.

By it we are able to diagnose diseases before wrapped in mystery; to detect poisons and food adulterations which otherwise would escape notice.

Its magic glance unfolds to our enraptured gaze the micro-crystals in the crude ground-mass of our common rocks, and gave birth to the beautiful and instructive science of microscopical petrography.

The microscope is the obedient hand maiden of the anatomist, the physiologist, the physician, the chemist, the mineralogist, the naturalist, and the botanist. Yet, like the coy maiden, it only develops its full powers of instruction and entertainment under the accomplished touch of its beloved master.

The study of natural history, or biology, as it is now generally called, is a most interesting and

absorbing source of happiness. Independently of its high scientific merits, it may be pursued as a pastime that can be excelled by no other. The wealth of amusement and instruction which it furnishes is beyond computation.

Not only does it drive away dull hours, but it expands the intellect and rears the soul aloft into a higher and purer atmosphere, and intoxicates the senses with a delight that grows more ecstatic at each advancing step. The only wonder is that so few grasp the opportunities which Nature so lavishly spreads before them.

Well may we sympathize with the remarks of Prof. Leidy, who says, "in observing the modes of life of those around me, it has been a matter of unceasing regret that so few, so very few, people give attention to intellectual pursuits of any kind. In the incessant and necessary struggle for bread we repeatedly hear the expression that 'man shall not live by bread alone'; and yet it remains unappreciated by the mass of even so-called enlightened humanity. In common with all other animals, the engrossing care of man is food for the stomach, while intellectual food too often remains unknown, is disregarded or rejected."

Right around us in our sphagnum bogs, peaty marshes, lily-covered ponds, damp mossy banks, occur countless numbers of that lowest form of animal life—the rhisopod. A single drop of water squeezed from a pinch of wet moss may disclose half a dozen genera of these creatures, represented by scores of individuals. The slime on submerged sticks, logs, and on the stems and leaves of aquatic plants contain myriads of these strange beings. The rhisopod is a soft mass of protoplasm, a fluent, "viscid, albuminoid speck" of jelly, generally protected by a minute shell.* It is an animal of the lowest order. It has extensile and contractile power, which enables it to move from place to place with an apparent purpose. It selects its food without a brain; it grasps it without having true feet or arms; it swallows it without a mouth; it digests it without a stomach; it appropriates nutritious material without absorbents or a circulatory system;

* Leidy.

it moves without muscles ; it apparently feels, but without nerves ; it propagates itself without reproductive apparatus. Yet, almost formless as these microscopic jelly specks are, if there be any truth in the theory of evolution, they are the living representatives of our most remote ancestors.

Geology enables us to read the history of the past life of our earth as recorded in tablets of stone. Here denudation, erosion, and glaciation have exposed to the inquiring gaze of the patient student the ponderous pages of the book of earth-knowledge, whose fruitful records challenge his best efforts to decipher.

Palæontology beckons us into realms where the animal and vegetable organisms of past æons lived, flourished, and died. Their ancient remains are entombed in the magnificent sarcophagi of palæozoic rocks and mountains.

And thus might we cite, one after another, the intellectual studies that go to make up the brilliant galaxy of the natural sciences.

It is well known to those who have given attention to the subject of the mind's development that the early years of human life are the most impressionable. From early infancy to thirty or thirty-five years of age, the life of man is essentially one of observation. From middle age until senility begins to deaden the faculties, man is a reflective being.

In early life the perceptive faculties are especially acute and active, and it is during this period that man lays in that store of information upon which to draw in after life when the ripened judgment is competent to arrange, classify, and digest the heterogeneous mass, and to evolve from it those great principles which enable the philosopher to formulate the laws of nature that form the basis of science.

The child of tender years, as soon as it begins to talk, and even before, takes its first object-lesson. Almost its first question is, "What is that?" The spotless leaflets of its embryonic memory receive their first and most lasting impressions from the answers to that simple question.

Given a toy, the child examines it, feels it all

over, listens to it, smells and tastes it. In each instance the child has made an observation. The delicate nerves have telegraphed the results of these primitive observations to the impressible brain. The child has taken its first lesson in science. It has laid the corner-stone of that edifice which we call education. If not discouraged and frowned into silence by the negative and unsatisfactory answers of older and harsher natures, its perceptive faculties and mental grasp of facts will be expanded and developed side by side, and the youth will merge into manhood well equipped for the battle of life.

The mind trained by correct and orderly methods is symmetrically developed ; its elasticity is unimpaired, its equipoise as perfect as may be, and its possessor is admirably fortified for that "struggle for existence" which no mortal can avoid or escape. Besides fitting one to properly enter life's conflict for bread, scientific education cultivates his taste, crystallizes his ambitions, and ennobles his aspirations. It places in his hand a never-ending source of self-amusement and self culture. Instead of idling on street corners, in bar rooms and billiard saloons, or dawdling in parlors, drawing-rooms, and clubs, engaged in senseless, and often in ill-natured and injurious gossip, the individual of scientific proclivities strolls into the country, there to meet Nature face to face, and read the lessons which she has spread before him in every leaf, plant, tree, insect, and bird ; in every grain of sand, pebble, and rock.

No object, however slight, either animate or inanimate, animal, mineral, or vegetable, that does not appeal to him in a language freighted with knowledge, pleasure, and enjoyment.

Observation and experience have led me to believe that our educators have generally pursued a course most prejudicial and destructive to the best energies of the mind. They have insisted upon iron-bound curricula embracing subjective rather than objective methods of instruction. When the perceptive faculties of the pupils are the keenest and their enjoyment of outward and surrounding objects the most natu-

ral and engaging, they are forced by the traditions of the past to attack and master if they can those abstract subjects which are better fitted for the contemplative mind of maturer years.

Aside from the enjoyment to be derived from the pursuit of the natural sciences, there is the more important result of their utility. No one man can master all that is known in these diverse fields, but he can master sufficient of those sciences bearing upon his profession or occupation to be of incalculable service to him in its prosecution. This is the day of specialists, and they who are the best armed and equipped by scientific training may easily distance their less fortunate competitors in the race for existence.

Science is yet in its infancy; and no one is bold enough at this time to predict where her limits shall be in the unseen, unknowable future.

The Margaret Cheney Reading-Room.

A FEW paragraphs in previous issues of THE TECH have called attention to the reading-room lately opened for the women students at the Institute; but as these statements have been somewhat misleading, the correct presentation may not be inappropriate.

The necessity of the room was early recognized, it is true, but was never fully met until the present year. Even in 1872, when the new building upon the triangular lot was contemplated, a provision for women was made in the plans then drawn; but it was reserved for "the new building," just completed, to embody the idea then proposed.

The Lowell Free Courses gave opportunities for chemical instruction as early as 1868. In this year and during each succeeding winter till 1875, a few earnest women here sought the scientific culture they desired. This work of the Lowell courses the men were able to supplement by attendance upon the classes of the Institute. In 1875, however, the professor's private laboratory was opened for quantitative analysis to the most promising of these women; and, as the

quality of their work in this branch of chemistry removed all doubt as to the ability of women for advanced scientific study, a separate laboratory was provided in the following year, to secure for the steadily increasing number of applicants enlarged facilities for work, as well as to supply the long-felt want for special accommodations. For the Woman's Laboratory to meet fully this latter necessity was impossible; in fact, well do the young ladies now at the Institute remember a time of poverty, in which they were forced either to wander through halls and corridors with wraps over their arms, or else to appropriate the backs of library chairs for hooks and pegs. But these things are of the past, they belong to the dark ages; a new era has dawned, is even now upon us.

The proposed "new building" pointed to the possibility of a realization of the long-cherished hope, — a ladies' private reading-room. When it was decided that a special room should be thus set apart, it was the happy thought of Mr. Ross, of the Corporation, to name it in memory of Margaret Cheney, who had but lately died, and who had long been connected with the Institute. Miss Cheney, the daughter of Mr. Seth Cheney, the artist, was one of the class which entered the Lowell Free Course of '73-74; and each year till her death, with the exception of those spent in travel, was she an earnest and enthusiastic student. Had she continued at the Institute a few months longer, she would have completed the work of the chemical course.

To those who knew Margaret Cheney, the form of memorial suggested by Mr. Ross was the only fitting one; while to those of us who have since learned something of her character, its appropriateness is apparent.

For the permanent use of the room as a woman's study the government of the Institute accepted the sum of \$1,000, subscribed by personal friends of Miss Cheney; the immediate family generously contributed funds for furnishing the room, while other friends have kindly helped to fill the bookcase and cover the walls. Although the room does not invite luxurious ease, the women students may here find, under

the benign protection of Diana, seclusion and retirement from the busy world around them ; and at the same time better realize and cultivate the social element in their characters.

In truth, such is the sanctity which shrouds the place, that even the dauntless youth, who

" Everywhere as welcome guest
Steps in with easy mind,"

pauses at the threshold, then turns sorrowfully away.

X. Y.

Gold Mining in Colombia.

TO one engaged in gold mining, at present or in prospect, the gold mines of Colombia must be a subject of interest. It has long been known that the gold and platinum deposits of the United States of Colombia were among the richest of the world. So abundant are these precious metals that the natives — Indians — scoop up the mud and sand from the river beds in their hands, wash it out in their rude pans in the ordinary manner, and obtain all the way from twenty-five cents to \$5.00 worth per pan. Gold is obtained with equal facility from the basins of all the rivers of this country, but the Atrato River, which rises in the Cordilleras and flows into the Gulf of Darien, is especially rich in these alluvial deposits, and an American company has been recently formed to work them.

The method to be employed is vacuum dredging, the operation of which is very simple and effective. From a scow, anchored in the river, an air-tight tube is sunk to the bottom, the air in the tube is exhausted by steam, a vacuum is formed, and the pressure of the atmosphere forces up everything within the capacity of the tube, the size of which is of course variable, but in this case is about two feet in diameter. The mud, sand, and other material is discharged through a valve, opened by a cam-lever, upon the scow, where it is then washed in the ordinary manner for the grains of gold. The mouth of the pipe is made slightly smaller than anywhere else in its length, so as to secure the easy discharge of whatever enters it.

It is said that stones twenty inches in diameter have been lifted with this dredge. The machine has a lifting capacity of from three to six tons of material at each lift, and makes a lift in about three minutes. It is estimated that it will dredge 3,000 cubic yards per day. The machine is now in successful operation on the Chestatee River in Georgia, for gold dredging, and in Maine and Vermont for other work. With such a powerful machine as this, the profit of dredging the as yet unworked basins of the Colombian rivers can readily be seen.

R.

Communications.

[The Editors do not hold themselves responsible for opinions expressed by correspondents.]

MR. EDITOR : — An editorial in a recent issue of THE TECH upon the advisability of raising the standard, as well as the age of applicants for admission, and dwelling upon some of the disadvantages of the present system, has, no doubt, been read by the thinking members of the several classes with much interest ; for it is generally felt among us that even with all the advantages the Institute affords for instruction in the sciences, it has, possibly, a tendency to turn out men who are not quite so well balanced as professional men ought to be. This is attributed in part to the low requirements of admission, and in part to the few years that must have passed over the head of a candidate ere he enters these walls.

That this is true in a large number of cases there can be no doubt, but the writer would beg to differ as to the remedies suggested, especially the second one, that the student "might, on leaving the preparatory school, spend two years in travel or business, as circumstances might dictate." The question of spending this time in business I will leave for the present, that I may protest at once against the advisability of a young man of sixteen years of age spending two years in travel before he resumes his stud-

ies, or rather enters upon the study of his profession. What could be more foolish than this for the average boy of sixteen, and especially for him who has the means to spend his time thus, thereby enhancing the danger of cultivating a taste for idleness, or a thirst for the exciting? for, say what you will, travelling is a pleasure, an entertainment, and though we may accidentally learn many things while travelling, yet the mind is not stimulated for study, becomes inert from want of exercise, and is not so ready to grapple with the difficulties of professional study as when fresh from the training that it has been receiving.

For this reason it would perhaps be better for a student not to enter even business life before coming to the Institute, though this would not be at all so detrimental in its effects, — indeed, with application might prove a benefit to him, but not generally speaking.

The true remedy, in the opinion of the writer, lies in the introduction of that system of education in vogue throughout Germany. There, there is an intermediate course between the preparatory schools of our country and the college, comprising, perhaps, two years each.

This is the gymnasium, and takes the place of our college. When a man has finished his course there, he is through with college life, good fellowship, societies, and all the pleasant but diverting attributes of our college life, and is ready to enter upon his professional studies in earnest. It is such men that we would like to have at the Institute, but until such a preparatory course is adopted, it will be difficult to reach other results than those now attained, which, though excellent, it is admitted, are, no doubt, susceptible of much improvement.

A SENIOR.

TO THE EDITOR OF THE TECH: — As the time approaches for the annual examinations, a number of the students are considering the question, does it pay for us to continue our course as regular students; would it not be better for us to drop some subjects and pursue a special

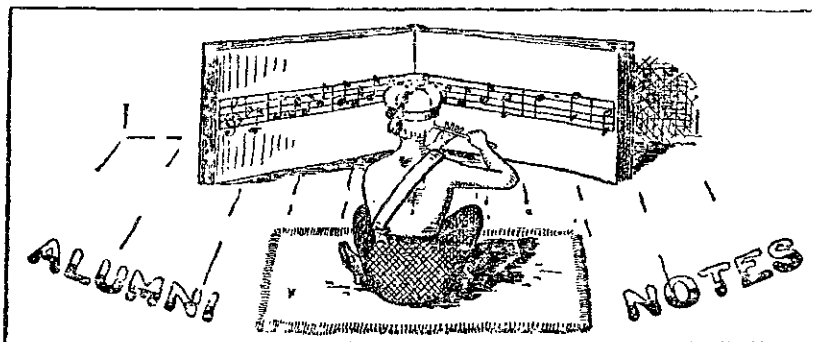
course? They say, we feel that four years is all we can afford to spend at the Institute, and that in that time we cannot do justice to all the studies required for a degree. Now, is there any ground for this view of the subject? I think that there is. The separation into courses commences at the beginning of the second year, making really three years for the professional work. A man starts upon these with the determination of remaining a regular. However, as the year progresses, he finds that, in order to accomplish this and conscientiously keep up his work, his hours at the Institute must be from 9 A. M. to 4.45 P. M., with possibly three quarters of an hour for lunch, and that all the rest of his time must be devoted to preparation. The Saturday half-holiday becomes a myth, and even a portion of Sunday is encroached upon.

If he does not devote much more of his time to his professional studies than is provided for in the Tabular View, his attention is called to the rate of progress of some other man, very likely a special, and he is told that he must do more work. In this state of things two courses are open, either to slight some of his studies, or to become a special. In the latter case he forfeits his degree. In the former he relies upon the hope of being able to cram up the subjects for the examinations, and thus remain a regular in name, but in reality he is a special.

Can a man undergo this continuous strain for three years without its injuring his constitution, and had he not better become a special? Is there not reason for the belief that a regular student is expected to do more in the last three years of his course than is consistent with his health, if he does his work faithfully? Can young men, from seventeen to twenty-one, stand this entire devotion to intellectual pursuits, and even if by a judicious system of cramming, they succeed in getting through, have they not formed habits of slighting their work which will injure them in after life?

F. S. C.

We are in receipt of the Directory of the Association of the Class of '74 from Mr. Charles F. Read, Secretary.



CLASS SECRETARIES (not in No. 9). — '72 C. Frank Allen, Albuquerque, New Mexico.

Mr. Harvey S. Chase, Secretary of Class of '83, sends us a circular, which is intended to elicit full information on '83 Class matters. Mr. Chase's address is 178 Lowell Street, Manchester, N. H.

W. B. Snow, '82, formerly assistant in mechanical engineering, has had charge of the classes in mechanical drawing at the Y. M. C. Association.

J. L. Kimball, '85, is with Walworth Manufacturing Co., of Boston.

J. M. Kimball, '85, is with New England Electric Light Co.

Redington Fiske, '85, has entered freight office of the Boston and Albany R. R.

At the University of Kansas, and, we believe, at one or two other places, students who obtain a term grade of ninety per cent in any studies are excused from final examinations in those studies. We would like to see this plan more extensively adopted. At the Institute, although many of our studies are marked upon our whole term's work, there is still room for improvement in this direction.

A New Degree. — Little Nell — "What do those letters B. A. after your name mean?" Young Pilkins — "They mean Bachelor of Arts. I got them at college." Little Nell — "That's what I thought. Wasn't it mean of them not to give you the other letters? Pa said he wondered you didn't get them." Young Pilkins (delighted) — "You mean the degree of M. A.?" Little Nell — "No, those were not the letters pa said." Young Pilkins — "Not? Why, what was it he said?" Little Nell — "He said he wondered you didn't get the G. B." — *Pa. Call.*

Department Notes.

During the year 1883, 7,156 miles of railroad were constructed in the United States, making the entire length of the railroad system 121,528 miles. During 1882, 11,343 miles were built.

Juniors desiring to continue their constitutional and legal studies will do well to consult the column of "Latest Legal Decisions," in *The Iron Age*.

The *Manufacturers' Gazette* prints a letter from Mr. S. H. Woodbridge, of the Institute, in regard to moistening the air of a cotton mill. The same paper has described the rule presented to the Institute by the Mason Machine Company.

The following is taken from an article in the *Iron Age*. Between the years 1875 and 1881 a network of underground telegraph lines was laid in Germany, the entire length of wire amounting to 23,210 miles, and connecting Berlin with two hundred and twenty other places; there is now in process of construction in France a similar system which will aggregate 3,435 miles in length. These lines are more expensive to construct than overhead lines, but their cost of maintenance is almost *nil*, and they have other advantages, especially in freedom from atmospheric disturbances and safety in case of military invasion.

A student's collection of minerals, for the examination of students, has been placed in the mineralogical lecture-room. The *Popular Science Monthly* for April gave an account of the method of instruction in mineralogy at Harvard, to which we find ours is identical in many respects, but superior in others.

Mr. F. H. Newell, '85, gave the class in Historical Geology an interesting sketch of the petroleum fields in Pennsylvania, as a supplement to Prof. Niles's lectures. He also had several photographs of burning tanks, spouting wells, etc.

The boiler tests of the Senior Mechanicals lasted from March 24 to March 29 inclusive. During this term the two boilers were worked night and day, and all the coal and water used

were weighed. The results are thought to be satisfactory, though there is considerable computation remaining to be done. Four separate tests were tried.

The Ohio Steel Works, at Cleveland, began, March 14, the manufacture of 3,000 pounds of fine steel, which is to be spun into wire of the finest quality, to be used in the manufacture of a monster cannon for our government. The gun will have a bore ten inches in diameter, and the casting is to be wound with this wire, the object being to have the tangential force of a discharge acting lengthwise upon the wire, in which way it is best able to withstand it. The model was invented by Dr. Woodbridge. This is one of six which are being made,—a description of the first one appearing in a recent TECH.

The *American Engineer* is publishing an article upon the connection of the height of floods with the destruction of forests, which seems to take a view of the subject not generally held. It also contains an interesting article upon the operating devices of the new Eddystone lighthouse.

The Quasbruck Steel Works have recently been manufacturing steel rails eighty-eight feet six inches long, which have been laid down on railroad bridges crossing the city of Hanover, Germany. It was found that the noise caused by passing trains was becoming such a nuisance that a remedy had become a necessity. The cause of it was the violent vibration at the rail joints, and the engineers hit upon the expedient of having the rails made long enough to cover the whole length of the bridges. — *Iron*.

In the *Railroad Gazette* for April 4 is begun an article by Mr. Horatio Allen upon "The First Five Years of the Railroad Era." It gives, in considerable detail, the account of the growth of the present locomotive, and contains many interesting reminiscences of the early days of railroads in this country.

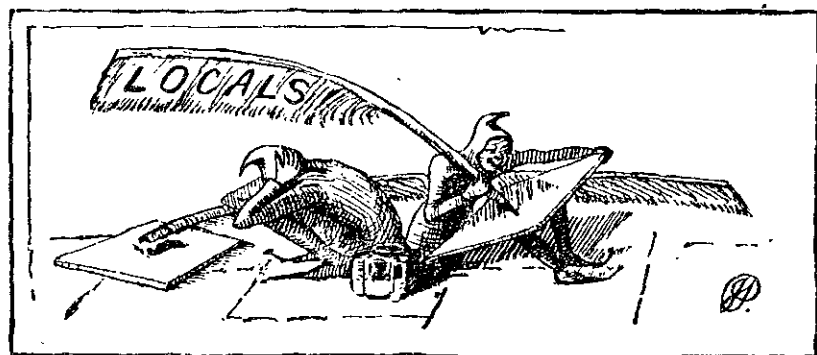
Dr. Dabney, the head of the State Agricultural Bureau of North Carolina, says, in regard to the discovery of tin at King's Mountain, that he found pieces of cassiterite, from the size of an egg to the finest sand, loose and sticking in quartz, scattered over the surface in a belt,

which extended southward for a mile or more. Several shafts were sunk and trenches dug, exposing a main vein and several smaller veins of quartz and quartzite bearing tinstone. The veins are nearly vertical, direction of outcrop north-east with the rocks of the country. The wall-rock is mica schist, which is broken down from both sides of the vein at places further than has been dug. It is for most part small grains, mingled with tourmaline, etc. The formation is similar to one in Cornwall, and with similar associations.

In addition to the facts and figures given in the last TECH, the writer would add that, according to the Signal Service reports of the 122 days between Jan. 1 and April 1, rain or snow fell on 75, 54 were classed as cloudy, 46 as fair, and only 22 were called clear, thus simply justifying the statement that the past winter has been an unusually gloomy and wet one. Much valuable meteorological information has been gained from the courteous officer in charge of the Boston Signal Office, Sergeant O. B. Cole.

The Boston and Providence Railroad is to adopt the block signal system as far as Forest Hills, a distance of about five miles. In connection with it, the Union electric signals and interlocking switches will be used.

Cotton, Wool and Iron notes with pleasure that some of the students of the Institute of Technology have questioned the practicability of the Colwell triple thermic motor, and states that the Lowell papers are very indignant thereat. To quote our contemporary, "We do not doubt but that the boys have materially contributed to the puncturing of the motor bubble, which establishes one fact, at least, conclusively, that the Massachusetts Institute of Technology is accomplishing good work, and that its graduates and students are too well grounded in the elementary principles taught them to be deceived by the plausible assertions of would-be experts, unless backed up by reason and common-sense." It is only fair to state that this sweeping compliment is no doubt brought upon us by the work of Prof. Whitaker, aided, perhaps, by some of our graduates who are settled at Lowell.



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Whereupon he got mad,
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And cursed the other Technology fellow. E. S.

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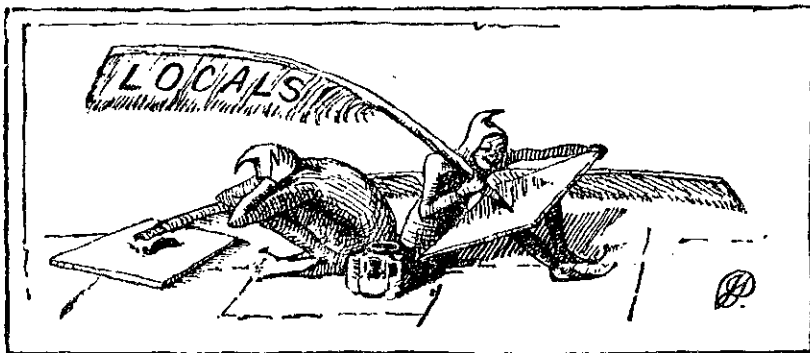
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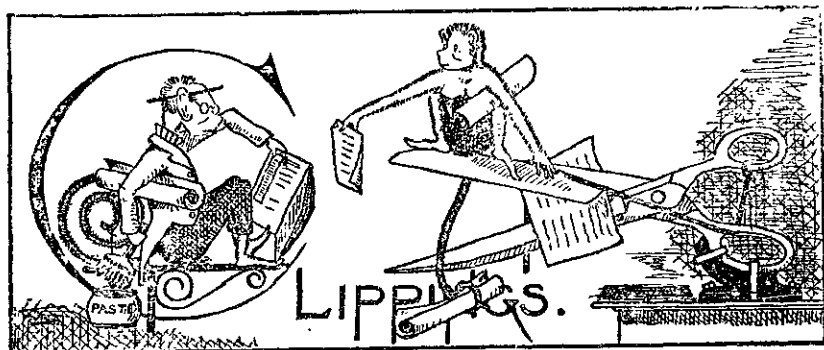
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Tit for Tat.

"Combien m' aimez-vous?"

Ah! the whispered words so sweet,
As, kneeling at my darling's feet,
I told the tale of love so true.

An answer did I vainly sue,
Looking down in mild surprise,
Laughter rippling in her eyes —
"Combien m' aimez-vous?"

Not a word of French I knew;
But her lovely, blushing face,
Downcast eyes and simple grace,
Furnished me at once a clew.

Quickly back the answer flew
From me as I kissed her hand,
Fairest maid in all the land,

"Σοὶ πᾶραι δίραμ' οὐ."

Acta

It is understood that this season the Concord School of Philosophy will issue pamphlets bearing such titles as will make them read even by the young, and in spite of the abstruse subjects discussed. To catch the restless eye of the youthful lover of yellow literature, these new works will probably be entitled, "Patsy, the Pretty Protoplasm," or "Mad Mike, the Avenging Molecule of Massachusetts," or "Bully Bill, the Bacteria." — *Ec.*

Making a fatal impression — upsetting an ink bottle on a newly finished drawing.

A student at one of our colleges asked a professor if a blue print was an aquarelle.

"Why, my gracious!" exclaimed old Mrs. Simpson, looking up from the newspaper; "if they hain't got them sparrers out in San Francisco; and they're fightin' thar jist as bad as they do here. They're bad birds, though they do call 'em by pet names. One of 'em's called Sullivan, and was brought all the way from Boston. Law!" — *Life.*

The girdle of Venus — a coat sleeve.

Fine fall weather — the skating season. — *Life.*

Our wittiest professors are those who teach chemistry. They are always ready with a retort. — *Chaff.*

The wittiest man is the chemist. He is always ready with a retort. — *The Fudge.*

Puck has discovered a new ore in Colorado, which analyses show to contain eighty-five per cent of gold, ten per cent of silver, and five per cent of diamonds.

First Soph. (examining the outside of an unopened telegram), "I wonder whom it is from" Second ditto (much surprised), "Why, don't you recognize the handwriting?"

William Washington figures in the "Encyclopedical Dictionary of the Spanish Language," recently published in Madrid, as "the founder of the Republic of the United States, and the first President." Pennsylvania, as the same volume declares, "has a population of one and a half millions, the greater portion being German. German is the prevailing language of the state."

Young wife to a gentleman whom her husband had brought home to dine. — "Do take some more of the vegetables, Mr. Blood, for they go to the pigs any way." — *Harvard Lampoon.*

This is the way the Vassar girls are slandered:—

The Vassar girls have a fire company. When their hose burst, they will probably darn them. — *New York Graphic.*

The Vassar girls have a fire company. A Vassar girl puts out a fire best when she is trying to kindle it. — *Louisville Courier-Journal*

Vassar girls have a fire company. Probably no fire company in the United States has such a complete and fashionable assortment of hose. — *Burlington (Vt.) Free Press.*

It is announced that Vassar girls have a fire company. But husbands need n't smile; its object is to put out fires, not to educate the female mind into the habit of getting up early in the dewy morning and starting them. — *Yonkers Statesman.*

NOYES BROTHERS,

WASHINGTON, Cor. SUMMER STREET, BOSTON, U. S. A.

Full Evening Dress Shirts, in the late English fashion, constantly on hand and made to special measure for any occasion. Always correct in style.

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Flannel Office and House Coats.

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Men's

— FINE —

FURNISHINGS,

Latest Styles,

NECKWEAR,

GLOVES,

CANES, ETC.,

— 343 —

Washington Street.

Among the anecdotes told by Lord Coleridge of his recent American visit is one to the effect that he asked Mr. Evarts, with whom he was visiting Mt. Vernon, whether credence could be attached to a story that Washington could throw a dollar from the lawn, on which they were standing, right across the river to the opposite bank. "Yes," Mr. Evarts replied, "I think it's very likely to be true. You know a dollar would go farther in those days than it does now."

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Is a specialty at CHAUNCEY-HALL SCHOOL, Boston, Mass., and its remarkable success can be ascertained from the Chairman and Secretary of the Faculty of the Institute.

It aims to fit its candidates so thoroughly that they will not be weighted by "conditions" to be made up after entering, when all their powers are needed for their regular work.

The School is within two minutes-walk of the Institute, affording to the teachers, who are preparing the candidates, unequalled opportunities for consulting the professors.

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PILGRIM and BRISTOL.

Tickets and Staterooms for sale at office of the line, 3 OLD STATE HOUSE, and at OLD COLONY STATION.

L. H. PALMER, Agent, 3 Old State House.

J. R. KENDRICK, General Manager.

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Kinney Bros.

CAPORAL, CAPORAL $\frac{1}{2}$, SWEET CAPORAL, AMBASSADOR, ST. JAMES, ST. JAMES $\frac{1}{2}$, etc. Pure Tobacco and Pure Rice Paper. SWEET CAPORAL. — *Cork Mouthpiece*. — Unsurpassed for cleanliness, economy, and convenience. The soft fitting of the cork between the teeth makes this the most desirable and pleasant mouthpiece, besides absorbing the nicotine, and rendering a cooling sensation to the smoke. Same tobacco as the renowned Sweet Caporal Cigarettes, — *absolutely pure*. The Caporal, Caporal $\frac{1}{2}$, and Veteran Cork Mouthpiece Cigarettes are also highly recommended. STRAIGHT-CUT CIGARETTES. — This Reliable Brand is made from extra fine, selected, prime, mild, Golden Virginia Leaf, and is the Finest Cigarette as to quality, flavor and workmanship ever offered for sale. Ask for Kinney Bros. Straight Cuts. Sold by dealers throughout the world.

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(Successor to F. Herchenroder.)

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and *tourne s.* Ladies' Hair Work of every variety. Children's Hair cut in the Neatest style.

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Manufacturer and Importer of

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AND

Chemical Instruments and Apparatus.

Six Catalogues on Various Subjects.

Students and all others interested invited to call or send for catalogue.

That Little Sister. — "Oh, Mr. Jones, Nellie says your name is Charlie. It is not, is it? Why, that's the name of my little doggy." (Pause, painful to Mr. Jones) "Say, Mr. Jones, were you named after puppy?" — *Spectator*.

Publishers' Notices.

Mr. Frank D. Somers has changed his place of business to No. 4 Park street.

On and after April 15th Vinal's Park Riding Academy will be in charge of Mr. H. L. de Bussigny, late of the Boston Riding Academy, with Mr. Harry Hagger as assistant.

Richmond Straight Cut No. 1 CIGARETTES

are made from the brightest, most delicately flavored and highest cost GOLD LEAF grown in Virginia. This is the OLD and ORIGINAL BRAND of STRAIGHT CUT CIGARETTES, and was brought out by us in 1875.

Richmond Gem Curly Cut Tobacco.

The BRIGHTEST and MOST DELICATE FLAVORED GOLD LEAF GROWN. This tobacco is delightfully mild and fragrant. Absolutely without adulteration or drugs, and can be inhaled with entire satisfaction without irritating the lungs, throat or mouth.

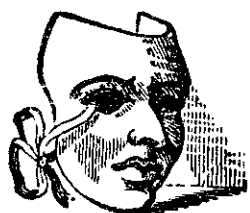
Caution.

The great popularity of this brand has caused certain parties to place on sale base imitations; the public is cautioned to observe that our signature appears on every package of Genuine RICHMOND STRAIGHT CUT CIGARETTES.

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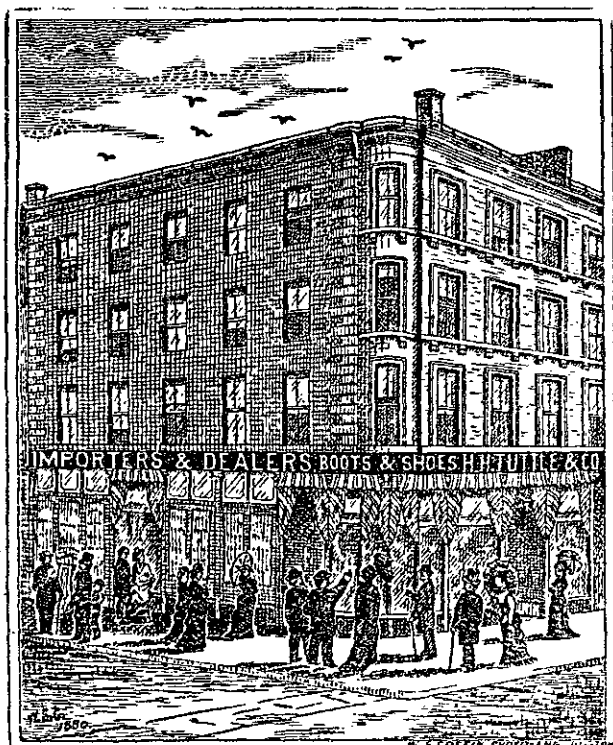
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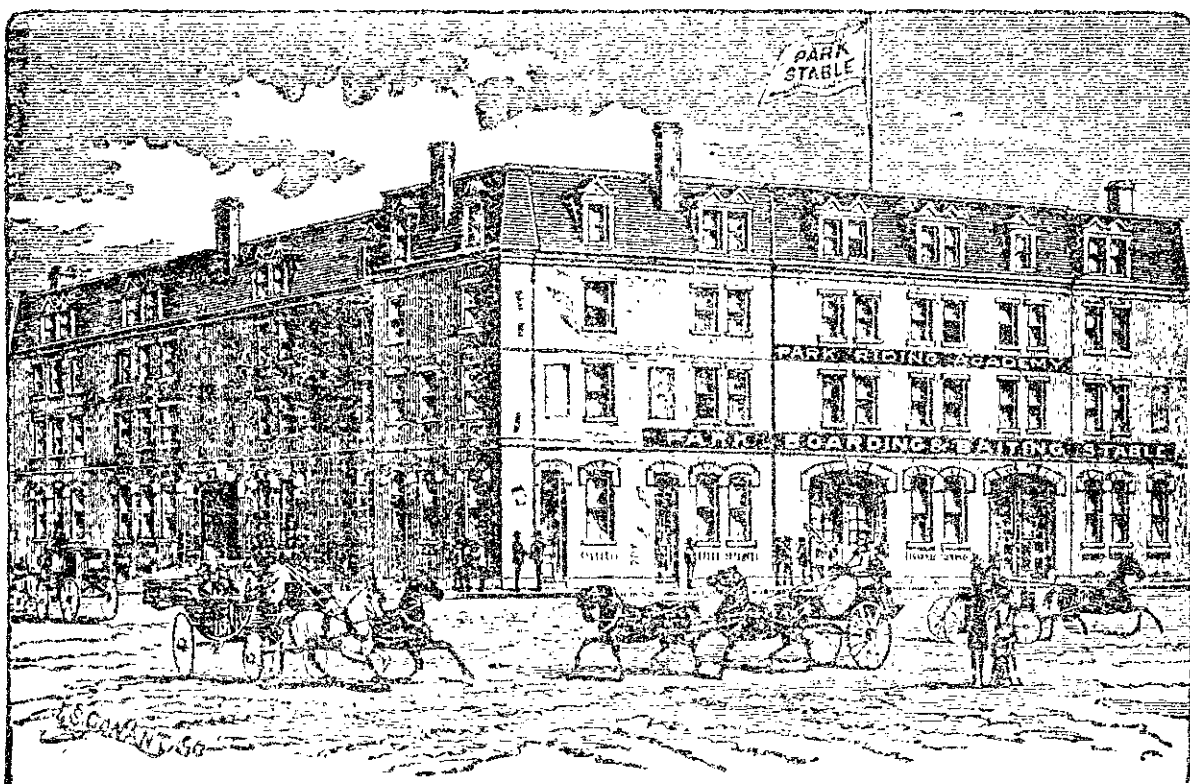
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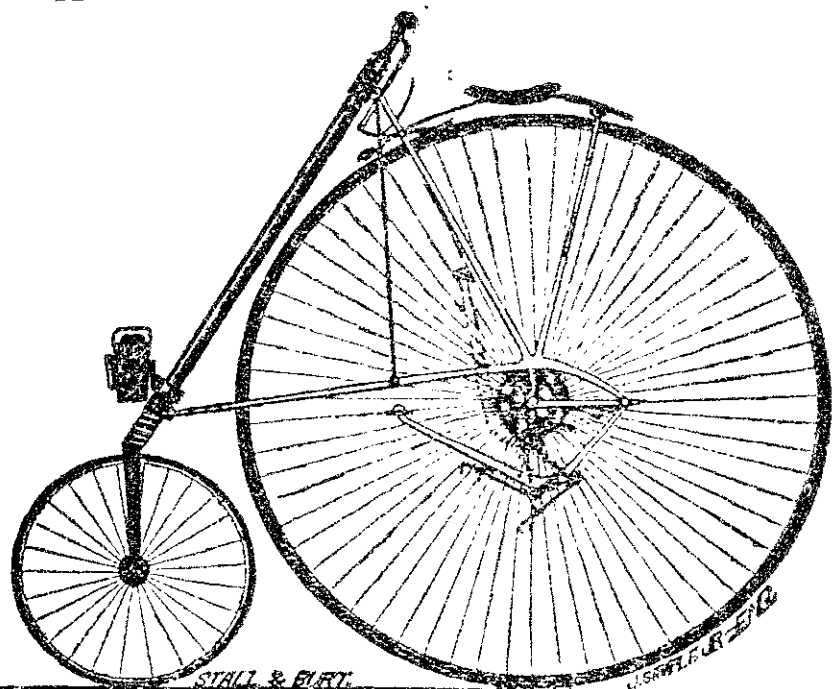
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