DIPLOMA'S ARE GIVEN TO 151

ANNUAL COMMENCEMENT OF THE HIGH SCHOOL.

Closes the First Quarter of a Century of Its Existence with a Record-Breaking Class—Miss Olive H. Munn, the Valedictorian, and Miss Helen Elizabeth Jones, the Salutatorian—Superintendant Howell Addresses the Class and President Gibbons Presents the Diplomas.

How appreciation of the excellence of Scranton's High school is growing was attested at the twenty-fifth annual commencement, last night, when there was graduated one hundred and seven girls and forty-four boys, a total exceeding that of the class of last year by forty-nine. There was also a decided mark of appreciation in the throng of spectators which overflowed the spacious auditorium, as far into the vestibule as one could possibly gain a peep at the stage.

The exercises varied none in their general character from those of recent commencements. The class poem, and history prophecy, and other like exercises, which in years gone by were crowded into the commencement programme, were disposed of the night before, as has been the custom of late, and all that was left for last night were the numbers by the honor students, the music, the presentation of diplomas and a brief address to the graduates.

The graduates marched to the stage from the rear vestibule, in two lines, meeting at an entrance in rear center of the stage, approaching the front in pairs, and then separating to the right and left, sought their places on the four tiers of seats, which occupied the full space of the stage, excepting for the aisles and the center and on the sides and a narrow way in front.

In the aisles at either side sat Rev. Rogers Israel, D. D., of St. Luke's, who made the invocation and gave the benediction; Superintendent of Schools George Howell, who made the address to the graduates; Acting Principal John U. Wagner, who presided over the exercises; President John Gibbons, of the board of control; Chairman T. J. Jennings, of the high and training school committee, and Controllers George H. Shires, P. J. Langan and Otto B. Schriefer. Others of the controllers were among the audience.

After an overture by Bauer's orchestra, Rev. Dr. Israel made the invocation, referring feelingly in his prayer to the recently deceased principal, W. W. Grant.

SANG THE GLORIA.

The graduating class, reinforced by a dozen of the best voices from among the undergraduates, then rendered Mozart's "Gloria," under the direction of the professor of vocal music, Prof. C. B. Dermun. This beautiful composition, which is attempted with any degree of success only by the best trained choruses, was given a rendition which bespoke the most careful drilling.

Helen Elizabeth Jones, the salutatorian, had "The Olympic Games" as the subject of her essay. She treated it in a very thoughtful and interesting manner. The recurrence of truces among the different peoples, declared each four years at the times of these games, the commingling of the great men of the different states, the displays of the sculptors, the literary exercises and the rivalry for excellence in the games had the effect of stimulating the nation to greater exertions, and gradually uniting them, brought about a better condition of society and consequently a better government.

Miss Grace Agnes Lauer, who took second honors in the Latin-Scientific course, chose as her subject, "The Leavening Power of the Crusades." She argued that notwithstanding the failure of the crusades to accomplish their prime purpose, they effected immeasurable good for the church, learning and material progress. Peter the Hermit, she said, was the forerunner of the salvation of Europe. The movement projected by him, led to the emancipation of the serf to the substitution of royal for feudal power and rolled back the wave of Mohammedanism which threatened to engulf Europe. The best ideas of Oriental civilization, brought back by the crusaders were disseminated through Europe; the needs of the crusaders in the fields encouraged maritime enterprises; their travels incited geographical interest and eventually led to the great discoveries of the few succeeding centuries. If the pilgrimage of the crusaders was not successful, she said, it could at least be characterized as the leavening substance of civilization.

MISS BURNS' ESSAY.

"Thoreau, the Hermit of Walden Pond," was the subject of the essay of Miss Iris Estelle Burns, who took first honors in the English course. She told entertainingly of the history of this recluse-philosopher, who made it his life work to prove the theory that existence is not a hardship but a pastime if men will live simply.

In a practical and thorough way, Miss Laura Ruth Thomas, who took first honors in the commercial course, gave an interesting dissertation on "The Elements of Success." To know the character of the work we are best fitted for was claimed by Miss Thomas to be the first element of success. Health is the basis of all success, she said. Ambition and cheerfulness are prime essentials and these depend in a great measure on health. Timidity and hesitancy were characterized as two dangerous foes to success.

One can have too much confidence in others but seldom in oneself. Success demands concentration and we should therefore confine ourselves to one line of work. Detail is everything. The world is made of trifles. Seemingly trivial details must be mastered, no matter what the line of work we follow. Method, punctuality, application, perseverance and self-reliance were mentioned as other "passports to victory."

The most pretentious literary effort of the evening was the original story, "The White Chief of the Navajos," by Miss Mary Alice Breck, who was second in the classical course. It was a very meritorious production and indicated its author possesses rare gifts as a story teller. The name of the story might lead one to consider it as an Indian story. It is that in only a secondary way. Its feature is a picturesque description of the Navajo fire dance.

MISS MUNN'S VALEDICTORY.

The valedictorian, Miss Olive H. Munn, goes from the high school with a record of an average of 98 out of a possible hundred in each final examination during her four-year course. That she is popular as well as studious was attested by the applause which greeted her appearance. Her classmates were the most enthusiastic applauders.

In her essay, Miss Munn dealt with the life of Horace Mann, "The Apostle of the Common Schools," characterizing him as the man whom America gives first place on the roll of honor among educators. His battle to overcome ignorance and prejudice, in reviving the public schools and the influence his work had on the educational interests of this country, were told an a very interesting manner.

In delivering the valedictory, Miss Munn took as her theme the celebrated picture, "Breaking Home Ties," and in a very clever manner likened the departure of the graduates from their alma mater to the boy taking farewell of his mother, to go out in the world—they were anxious for the moment to come, but when it came they were seized with a longing to remain amid the scenes they loved so well.

Controller F. S. Barker, who was to have delivered the address to the graduates and presented the diplomas, was unavoidably absent, and these duties were divided between Superintendent Howell and President Gibbons.

Superintendent Howell's advice to the graduates is summed up in the one word, "Work." This is an age of lightning rapidity, he said, but one must remember that the agencies of this rapidity are the results of the work of ages piled mountains high. Work is the measure of all values. It is the time and energy spent in cutting and polishing a diamond to bring out its lustre that makes a diamond valuable. Idleness is treason to Nature and an impiety to Heaven itself.

GREATNESS MEANS WORK.

No man ever leaped into excellence at a single bound. All who ever achieved real greatness were self-made men. Shakespeare was a doortender in a theater. Franklin was a job printer. Burritt was a blacksmith. The world called them self-made men. More truly were they honor men in the great university of labor, adversity and hard knocks.

The diplomas were then presented by President Gibbons. Prof. Wagner called the names, successively, and each student in turn rose and remained standing until his or her diploma was received, two of the primary school boys carrying them from the hands of President Gibbons to the recipients. Each graduate was greeted with hand-clapping from the under "grads," and their own classmates. The honor students and the boys who had achieved some greatness on the diamond or gridiron came in for an especially liberal share of the applauding.

Two choruses by the class and a selection by the orchestra interspersed the literary numbers. The exercises were closed with benediction by Rev. Dr. Israel.

The usually almost torturous heat of the auditorium on commencement night was lessened to a very appreciable degree by the happy idea of distributing eight tons of cracked ice in the air ducts which feed the ventilating system.

At the conclusion of the programme the graduates and their friends enjoyed a dance at Siegel's academy.

ENGINEERS AT THE BIG DAM

THEY WERE THE GUESTS OF COLONEL WATRES.

An Examination of the Great Piece of Masonary the Spring Brook Water Company Has About Completed—From Red Rock to Spillway It Is One Hundred and Four Feet High and at Its Base Is Eighty Eight Feet Thick—Storage Capacity.

In redemption of a promise made last winter, Colonel L. A. Watres, president of the Spring Brook Water Supply company, yesterday escorted the Scranton Engineers' club to the site of the company's fine new dam, seven miles up the Spring Brook from Moosic, and after a thorough inspection of its engineering features entertained the club and a few other guests at a luncheon served in a pavilion on the company's farm near the distributing dam. Conveyance was by a special trolley car to Moosic and thence by the company's freight railroad to the new dam and to the conglomerate quarry near the former site of the Stark homestead. This railroad, with its steep grades in places rising nearly 500 feet to the mile, was almost as interesting an engineering proposition as the dam.

Arrived at the dam, the party was taken in tow by the constructing engineer, John H. Lance, and informed of its dimensions and special features. The dam represents 30,100 cubic yards of masonry and 13,000 cubic yards of embankment. From bed-rock to spillway it is 104 feet high and at base is 88 feet thick.

DEPTH OF WATER.

The water depth is 87 feet. There are 280 feet length of masonry and 240 feet length of embankment. One end is wedged into a natural wall of solid rock; the other is bounded by a massive wall at right angles. From comments by the experts the dam must be voted a distinct success. It backs water a mile and a quarter and gives a storage capacity of 2,000,000,000 gallons, the drainage of a water shed of sixty square miles. The masonry in it is of the most durable conglomerate quarried at the company's quarry, at which the supply is seemingly unlimited. Colonel Watres' new home on the boulevard, now under construction, is to be built largely of rock from this quarry.

When the visiting engineers had surveyed the sights of professional interest to them, the party was conveyed back to the pavilion previously mentioned, and after making way with the commissary supplies listened to a symposium of eloquence and wit contributed by Colonel Watres as toastmaster, Judges Lynch, Edwards, Carpenter and Darte, and other gifted speakers. Vice President H. H. Stoek, of the Engineers' club, acknowledged in behalf of the club the visitors' appreciation of the outing and this was further attested by a rising vote of thanks.

MEMBERS OF PARTY.

The party comprised: Judges Lynch and Darte, Hon. Charles A. Miner, Eli T. Conner, E. R. Pettebone, John A. Schmitt, W. J. Richards and A. L. Williams, of Wilkes-Barre; M. J. Hamilton and Walter Frick, of Carbondale; Geo. T. Gwilliam and Charles W. Thompson, of Philadelphia; Willard Young, of Hazleton; Alex. Bryden, of Dunmore; Messrs. Watres, O. M. Lance, John H. Lance and S. H. Hicks, of the Spring Brook Water Supply company, and the following from Scranton: Hon. H. M. Edwards, Hon. J. W. Carpenter, H. H. Stoek, T. Milnor Morris, William M. Marple, J. L. Crawford, J. E. Parrish, J. H. Fisher, E. M. Zehnder, James Herring, H. F. Cox, W. E. Anderson, Fred. H. Crippen, Reyburn Watres, Alex. Kethel, Fred. C. Baker, James H. Hughes, Eugene B. Wilson, Frederick K. Tracy, A. W. Long, Thomas F. May, G. E. Huttelmaier, William A. Mintzer, H. A. N. Lane, J. H. Rittenhouse, E. L. Merriman, R. E. Hurley, Joseph P. Phillips, Howell Harris, F. B Hamilton, William Gratz, H. S. Webb, D. B. Atherton, A. B. Dunning, L. H. Watres, J. Gardner Sanderson, E. M. Stack, W. G. Parke and Livy S. Richard.

MILITARY MATTERS

A feature of the new armory which is particularly interesting for visitors to contemplate consists of the company rooms. Each individual company strove its utmost to make its abode the best furnished and most homelike in the armory, and the result is a suite of as about pleasing apartments as any person, no matter how fastidious, would desire.

The state allowed for each room the carpet, a table, a roller-top desk and six chairs. The company treasury was drawn upon to furnish the remaining accessories, and as a result there are several pianos seen in the various rooms, handsome tapestries in abundance, pretty lamps and tasty pictures.

In the room of Company K hangs a large and excellent likeness of the late Isaac Brown, first lieutenant of the company and one of the most popular officers of the regiment.

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The large American flag which waves over the entrance to Company F's fine room in the new armory is a flag with a history. It is the property of Commissary Sergeant Harry Heermans, of the non-commissioned staff, and has rested over the remains of every dead member of the regiment. Beneath its folds thirty-two men have been laid to rest.

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There will be a formal drill and guard mount of the Third battalion, commanded by Major Frank Robling, at the armory Monday night. The Second battalion, under Lieutenant-Colonel F. W. Stillwell, will have its drill and guard mount Tuesday night.

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One of the features of the new armory and important adjuncts to the advantages presented to the athletically inclined will be the bowling alleys, work upon which is to be soon begun. A regimental bowling team is therefore a strong possibility of the coming winter. There are many strong bowlers in the regiment, and an excellent team could be formed.

* * * * *

The attendance at the Dickson City range continues large, and every day ambitious youths of the guard spend their leisure time in striving to make marksmen out of themselves. During last week two more men qualified as sharpshooters. Both were officers of Company B. Captain John Kambeck made 70 out of 75 which crowds Harry Heerman's record of 71 for this season pretty closely. Lieutenant Barry qualified with 68. There is plenty of good material on hand for the team, and there is little doubt that the regiment will be represented by a crackerjack aggregation of rifle men this year. The team will not be picked until after July 1.

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There is some talk that Private Fred Van Buren, the newly appointed armourer, will not have sole charge of the new armory. Harry Heermans, Reese Watkins' successor as superintendent of the armory and rangemaster, will, it is said, accompany the recent appointee, and the two assume joint control. After July 1 it will be definitely announced what the arrangement will be.

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After the battalion drill Monday night the first game of indoor base ball to be played in the new armory will take place. D and F will struggle for supremacy.

Marriage Certificates, Wedding Booklets.

Norton's, opposite Hotel Jermyn. **

WATER FOR STIFF NECK.

Washington Physician Says Aqueous Remedy Has Great Results.

"The simplest temporary cure for a stiff neck or any similar attack of the muscles anywhere," explained a well known physician to a reporter, "is the very free drinking of water. A large glass full of water every half hour, or even oftener, should be taken, and the treatment kept up for at least half a day. This, it must be remembered, only cures the effects, and unless it is kept up for a long time will hardly get at the cause, which is now generally understood to be an excess of uric acid in the blood. The cause of a very large amount of water has a tendency to dilute the blood and increase the supply of the lubricants about the sheaths of the muscles. It is the deficiency of those lubricants that produces what are known as stiff necks, stiff shoulders and the like. Nearly all of the so-called mineral waters can be used, and those that have lime, iron, potash, lithia or sodium should be preferred if they are handy, but if none of them are getatable the ordinary drinking waters, hydrant, well or spring, can be used. The point is to get an extraordinary amount, so as to dilute the blood as rapidly as possible. I have no objection to the use of liniments or external use of lubricants, but water can be depended upon if persisted in to do almost the same thing. Medical treatment, if people do not care to keep up the water treatment, is necessary, however, to keep from a recurrence of the attack. I really think the success of many of the famous water cures is not the quality of the water used, but the quantity of it. None of the water cures would think of promising any cureor relief even in the use of three or four glasses of water in a day, but they have but little hesitancy in doing so if from thirty to forty glasses are used each day. For the same reason if a cure is expected from drinking water a very large quantity of it must be drunk. Six hours' treatment, however, should cure the ordinary stiff neck."

Special Low Rates via the Lehigh Valley Railroad to

Cincinnati, O., account Christian Endeavor convention. Tickets on sale July 4th., 5th. and 6th.

San Francisco, Cal., account Epworth League meeting. Tickets will be on sale from July 4th. to July 12th., inclusive.

Consult Lehigh Valley Railroad agents for particulars. **

JONAS LONG'S SONS. | STORE NEWS FOR | SATURDAY, JUNE 22.

Shoes for Every Member of the Family.

There are hundreds of people who postpone buying shoes until Saturday. That accounts for our effort to try and please everyone by offering the best possible values.

OXFORD TIES—LADIES

Made with flexible soles and finished with patent leather tips, in the newest shapes....99c

LITTLE MEN'S SHOES.

Well made, of either Calf or Vici Kid, with solid leather soles and counters.....95c

PATENT LEATHER OXFORDS.

In a nice quality of leather, in the new mannish last and new heel $1.90

LADIES' SHOES.

Made of Dongola Kid, in button or lace. They have the latest style toe, the new military heel and patent leather tips. $1.45

OXFORD TIE SHOES.

Made of Dongola Kid, with light or extension soles, patent or kd tips $1.45

ORIENTAL BATHROOM SLIPPERS.

Made of Turkish fabric; of numerous colors; for men, women and children 49c

OXFORD TIES, $1.89.

This grade is hand-turned and is made of Vici Kid, in the new heel and toe shapes ...$1.89

MISSES' SHOES AND OXFORDS

In black or tan, button or lace, made of solid leather all through 95c

MEN'S SHOES.

In black and tan; all have hand-sewed welts; values up to $4.00; now $2.90

Babies' Soft Sole Button Shoes in Tan and Black. They are just as flexible as they can be..... **20 Cents**

RIBBONS FOR SATURDAY.

These extraordinary offerings in Ribbons seems to fall on the right day every time. Today it's about a lot at less than half price. All Silk Satin and Gro Grain Ribbons in a large variety of colors, the widths are 12—16—22—40 and 5 inch, the values range up to forty cents. Saturday 12 1-2c

Lot No. 2 is an All Silk Taffeta Ribbon in Nos. 40, 60 and 80; also No. 40 fancy corded Taffeta Ribbons, value up to 50c. Saturday 12 1-2c

INFANTS' HOSIERY.

Fine quality Cashmere, all sizes as far as the grade goes. They are equal to the twenty-five cent kind. Saturday, the pair 15c

BOYS' UNDERWEAR.

Thirty cents for a suit; it would seem as though that was low enough. It is a cream colored garment, nicely finished in shirts or drawers. Saturday, each 15c

Keep the stray locks in place by using an ideal Hair Retainer. It's a neat little contrivance and a long wanted article at the same time. 10c and 15c each. See them at Jewelry department Saturday.

MEN'S FURNISHINGS.

As usual, Summer comforts for men come to the front for Saturday. Have just opened another lot of the famous Peyser Comfort Shirts $1.00

Have you bought any of those Silk Heel and Toe Hose for men? They are made of cotton and come three pairs in a box 50c

Other Needfuls for men at right prices.

BOYS' CLOTHING.

A hot-weather fad, Boys' Washable Caps, in Golf, Yacht and long peak Eatons, sizes for the large boy and the small boy too, each 25c

BOYS' STRAW HATS.

Including plain white and fancy colors. Same as the sailor style with broad and narrow rims. All have fancy bands of Polka Silk 25c

BOYS' WASHABLE SUITS.

In dark and light colors—they are all made with large sailor collars, and deep shield fronts, neatly trimmed. Sizes 2 to 9 ....50c, 69c, 75c, and 89c

BOYS' SAILOR BLOUSE SUITS.

Made of fine quality of Blue Serge. The collars are trimmed with Silk Soutash Braid in red and white. Sizes 3 to 9 years. Price $2.98

Copyright Books, $1.10

"THE CRISIS."

Winston Churchill's new novel is the talk of the town. The book teems with historical facts so interestingly written that your interest is held from first to last.

Other new books as follows;

Mr. Dooley's Philosophy.
In Search of Mademoiselle—by George Gibbs.
The Helmet of Navarre—by Bertha Runkle.
The Master Knot of Human Fate—by Ellis Meredith.
The Riddle of the Universe—by Prof. Ernst Halckel.
Observations of Henry—Jerome K. Jerome.
When Blades Are Out and Love's Afield—Cyrus Townsend Brady.

Jonas Long's Sons

SPECIAL BARGAINS SATURDAY AND MONDAY

HOSIERY DEPARTMENT

Ladies' Ribbed Vests, lace trimmed	10c
Ladies' Ribbed Vests, silk tape	12½c
Ladies' Fine Mercerized Vests; regular 25c goods	19c
Misses' Grenadine Stripe Hose	25c
Misses' Mercerized Red Hose; 25c goods	21c
Boys' Fast Black Hose	12½c
Vacation Stockings for Boys, Black Cat brand	25c
Ladies' Fine Drop-Stitch Hose	25c
Infants' Cashmere Hose, silk heel and toe	25c
Infants' Robes, Swiss and lawn caps at special prices	
Corset Covers, good quality	7c
Corset Covers, Val. lace trimming	39c
Corset Covers, cambric hemstitched	25c
Corset Covers, cambric, for stout forms	25c
Gowns, good muslin embroidery trimmed	59c
Gowns, fine cambric lace and embroidery trimmed	95c
Skirts, fine cambric or muslin	95c
Skirts, fine long cloth or lawn, slightly soiled	95c

NOTIONS

Collars, new lawn and open lace	35c
Collars, white soft hemstitched	5c
Dresden Neck Ribbons—12½c grade for 9c; 20c; grade for 15c; 29c grade	19c
Hair Ribbons, fancy plaid stripe	4c
Polk Spot Ribbons, for hat or neckwear	25c
Large Palm or Jap. Fans, three for	5c
Belt Buckles, gilt and silver; 25c value	15c
New Torchon Lace and Inserting	5c
Black Velvet Ribbons, all widths. Parasols at ½ price	
Umbrellas, colored twill silk; $2.50 grade	$1.95
Umbrellas, twill silk, patent push, new handles	$1.00

NEW WASH GOODS

All in the very proper new work, white ground, black scroll figures and lace stripes; an exact copy of English 45c goods. Our price 12½c

India Linens, White Shear; Special values from .....6c to 35c

Piques, new, Corded Welt, white black and navy .....12½c to 40c

Lace Stripe and Grenadine effects, White Lawns and Muslins; a fine selection of new goods for waists and dresses.....15c to 75c

A shilling a yard for the best selected styles shown this season of dainty Dimity and Batistos, in even and broken stripes, spots and scroll designs.

New printed Linen Colors, Batistes, Lawns, etc. The latest craze; a very large assortment at..... 12½c

Mouseline de Soie, in exquisite plain shades, with silk broken stripe of silk colors; cheap at 50c; some ask 65c for this new assortment. Our Price is 39c

MEARS & HAGEN, 415-417 Lackawanna Ave.

SCIENTIFIC SALAD

"Inaccurate knowledge is a dangerous thing. So in all things let us be accurate."

Readers of the Salad would greatly aid me in my task by asking questions (not necessarily for publication), which if possible will be answered in full in an early issue of the Weekly Salad and their receipt acknowledged immediately by mail. All such communications must, however, as a matter of course, bear the writer's correct name and address as otherwise they cannot be taken into consideration.

DR. CARL SEILER, of Scranton, Pa., presented a paper at the recent annual meeting of the American Laryngological association upon "The Effects of Cinchonism Upon Vocalization and Articulation" of which the following is an extract: He found in the first place that the ordinary tinnitus aurium due to middle ear disease never transgressed the limits of pitch from D 1 (297 vibrations as the lowest point) to the F 2 (704 vibrations) as the highest, as near as it was possible for him to determine, and that the subjective noises, although variable in quality or timbre, had no appreciable effect upon vocalization or articulation, but that they would invariably and very materially affect the perception of sounds which had the same or nearly the same number of vibrations per second as the subjective noises of the patient. The subjective noises due to quinine, salicylate of soda, alcohol, ether and many other drugs were invariably of a very high pitch, varying from as low as the G 3 (1584 vibrations) to as high as F 6 (5960 vibrations), and often even higher. He also observed that any composite noises of high pitch not only interfered with the pronunciation of those consonants which, according to the investigations of Helmholz and others, have for their characteristic sound a combination of high-pitched sounds, such as "th," "S," "Sh," "Z" and the like consonant sounds of articulate speech, but also caused them to be easily obliterated and consequently most difficult to appreciate and be recognized by the ear.—Philadelphia Medical Journal.

But what is more important and astonishing, he found that the high pitched subjective noises in the ear produced by drugs and which are not due to mechanically produced sound waves of the air, also materially interfered with the pronunciation of the high-pitched consonants to an interference which would indicate that subjective or mental sensations are to some extent material, otherwise they could not interfere with a purely mechanical process such as articulation.

Pathogenic Transmutations of Bacteria.

It was suggested, a dozen years ago, and has been constantly maintained by many independent observers, that the derivation of pathogenic bacteria from the originally benign, by means of their nourishment on products of corruption, abnormally concentrated and retained within foul feeding or diseased animal organisms, or unventilated jungles and marshes was not only possible, but very probable. Under such watchful observation, instances confirmatory of this hypothesis both by fact and opinion, have gradually multiplied, until now it is extensively entertained and often evidenced to observers. Late experiments add to the various pathogenic transmutations of the bacillus coli communis previously evidenced, an actual development of the bubonic plague and its germ from the intestines of that foul scavenger of the world, the rat. At a recent meeting of the Societe de Biologie, Paris, Dr. Caldas, a Brazilian bacteriologist, reported experiments on the colon bacillus of the rat. By cultivating this organism with a certain mold derived from rice, aspergillus orizoe, and passing it from rate to rat, he finally obtained a bacillus closely resembling the typical plague germ, in great numbers, from the glands, spleen, stomach and intestines of the infected animals, which produced, when injected into rats, similar clinical symptoms, and was always rapidly fatal. The biological characters of this organism throughout were the same as those of Kitasato's bacillus pestis, and he has no doubt as to their equivalence. He claims moreover, to have succeeded in rendering a horse immune by venous injections of at first very diluted cultures of the germ, followed by more virulent ones, and with this horse's serum has been able to save rats that had previously been inoculated with the virulent cultures. He gives it as his opinion that the plague in its origin is a colon bacillosis of rats, caused by the ingestion of rice containing a mold, aspergillus orizae, and that the colon bacillus, by successive passages from rat to rat, takes on the characters of the plague bacillus.

The Journal of the American Medical association points out that Caldas claims the Sanarelli bacillus of yellow fever to be likewise a modification of the bacillus coli, the special virulence of which is due to the presence of a mold.

The Low Temperature of the Goorkha

The bodily temperature in a state of health is generally accepted as among the most constant of physiological phenomena. It seems, however, that the normal temperature of the Goorkha Sepoy is below that of the generality of mankind. In the February number of the Indian Medical Gazette this fact is set forth by N. P. O'G. Lalor, M. B., B. Ch., a captain in the British Indian medical service. Captain Lalor, reasoning that this must be due to defective metabolism, tested his theory by administering sugar, about six ounces daily, for a period of eleven days, to six healthy men of a Goorkha regiment. Their average temperature for eleven days preceding the administration of the sugar was 97.1 degrees Fahrenheit, for the period of its administration 97.4 degrees, and for the eleven days following the cessation of the saccharine treatment 97.2 degrees. The temperature rose in every case during the period of feeding with sugar.

New Magnetic Observatory.

An interesting series of building has been erected at Cheltenham, Prince George's county, Maryland. This is the new magnetic observatory of the United States Coast and Geodetic survey. Copper and brass are employed for all pipes and metal work, and the stove, which burns wood exclusively, is built of soapstone. The observatory is composed of two buildings, in one of which the magnetic influences on the compass will be measured. The instruments will be kept at a constant temperature of 65 degrees Fahrenheit by means of a series of walls sheathed with thick paper, and other spaces are also provided. There are four sets of doors. The observatory is far away from any disturbing electrical influences, so there is no question that the observations will be most accurate.

Danger of Overhead Electric Wires.

Mr. Quin, the borough electrical engineer of Blackpool, England, has perfected an invention by which all dangers from overhead electric wires are obviated. When a wire breaks, the current is switched off by a switch which is automatically released, and the wire thus rendered harmless. In the experiments which were carried out to prove the efficiency of the invention, three telephone wires were severed and fell upon an overhead electric wire. Instantly the automatic switch operated, and the inventor picked up one end of the broken wire. In this connection I may mention that only a few days ago the commissioner of highways of Brooklyn, N. Y., refused to give his permission to a new trolley line for erecting poles in the streets of the city, claiming that overhead trolley wires are not only dangerous to life, but also to property in hampering the firemen in their work.

American Trains and Engines.

A French report of the proceedings of the International Railway Congress gives the following, among other details, relating to the most rapid trains in the United States:

The Atlantic City Flyer of the Philadelphia and Reading railroad has the greatest average speed, viz., 66¼ miles per hour.

Some of the Pennsylvania railroad trains run at an average speed of 65¼ miles.

Train No. 570 of the Pennsylvania, between Philadelphia and Jersey City, has an average speed of 61.8-10 miles per hour, excluding stops.

Train No. 15 between Chicago and Burlington has 57¾ miles.

The Erie runs a train between Hornellsville and Susquehanna at 56½ miles.

The Empire State Express of the Central from New York to Buffalo runs at a speed of 54 miles, deducting the time lost in stops.

In the report the characteristic changes in American high-speed locomotives during the decade 1889-99 are summarized as follows:

First—The later engines are the heaviest and most powerful.

Second—The boiler pressure has been increased and the boilers have been greatly improved.

Third—The compound engine is coming rapidly into use.

Fourth—The ratio of the heated surface to the volume of the cylinders has been increased.

Fifth—And also the coal and water capacity of the tender.

Sixth—There is a tendency to increase the length of the stroke of the piston.

Seventh—As well as toward a greater piston velocity.

Buying Car Tickets from Slot Machines.

The sale of railway tickets from automatic machines has proved a great success in Berlin and its suburbs. The employment of this method of delivery is greatly facilitated by the fact that the zone tariff system is in force on some of the railways while run around Berlin, and on the chief suburban lines. No one is allowed on the platform unless he is going by train, or purchases a platform ticket, and the sale of platform tickets, which cost 10 pfennigs, and are also supplied by automatic machines, nets the railways over $500,000 a year.

Method of Detecting Hypo in Photographic Work.

The importance of thoroughly eliminating the hypo from negative or prints in photographic work is so well recognized that it need not be insisted upon, and it will therefore be useful to give a method which has been brought out in the Belgian Photographic Bulletin for detecting small traces of hypo in the washing water and thus observing when the operation is finished. Into a deep tray is poured a small quantity of the water or solution in question and a few pieces of granulated zinc are thrown in, after which add a few drops of hydrochloric acid. Place above the tray a filter paper wet with a solution of acetate of lead. If the least trace of hyposulphite remains in the solution the paper will become brown, and afterward assume a black metallic appearance. This action is due to the formation of hydrogen sulphide, wich escapes to the surface and colors the paper by forming lead sulphide. In this way it is always easy to determine when the washing is finished or to examine a solution suspected of containing hypo.

Raising Hungarian Grapes.

An experiment in raising Hungarian grapes is to be made near Norfolk. Barth S. Lindsay, of Norfolk, Va., is the projector of this experiment. He will at first plant three acres in these vines, and if, after three years, the experiment proves a success, he will establish a larger vineyard. Mr. Lindsay, who has had experience as a vine dresser in Hungary, considers the climate and soil of this section favorable to the growth of these grapes.

Great Lakes as Fish Hatcheries.

Fishermen will be interested in the announcement that 200,000,000 whitefish will be distributed in the Great Lakes from the Michigan hatcheries during the coming season. In addition to these, the same hatcheries will distribute in the larger streams of Michigan 7,000,000 brook trout, 3,000,000 lake trout, 7,000,000 black bass and 100,000,000 wall-eyed pike. The work of planting fish is as interesting and about as important as any in the line of preserving an industry which is paid for out of public funds.

The Effect of Electric Curents Upon Hydras.

Hydras are small water animals of low order and of the same subkingdom as coral polyps. If a hydra be arranged with its long axis perpendicular to the direction of an electric current it has been shown by the recent experiments of Raymond Pearl, that in a short time the hydra changes its position so as to orient with its head toward the anode. The change of position is brought about by a contraction of the hydra at a point just above the foot, on the anode side of its body. The bending continues until the long axis is quite parallel to the current. If the current is strong enough to kill the animal there occurs a slight muscular spasm on the cathode side of the body. If the hydra is already placed parallel to the direction in which the current is to pass, there is a violent contraction on making the current if the head is toward the anode, and no immediate contraction at all if the head is placed in the opposite direction.

Definitions.

The Standard American Measure for Gravity.—John F. Hayford, of the United States Coast and Geodetic survey, gives in Science an account of a new connection between the gravity measures of Europe and the United States, completed last year by G. R. Putnam, assistant surveyor. The result gives the gravity "constant" at Washington, as nearly as it can be determined from the data at present available, a value of 980,111 dynes, equivalent in English terms to 32,155 feet, which means that the atmospheric pressure will balance a column of distilled water at a temperature of 60 degrees Fahrenheit measuring in length 32,155 feet.

Carl Seiler, M. D.