HOW THE AQUEDUCT IS DUG

WORK ON THE GREAT TUNNEL THAT WILL BRING WATER TO THE CITY.

A TRIP THROUGH THREE THOUSAND FEET OF THE BIG TUBE—PUSHING IT INTO THE ROCK—HOW THE SHAFTS AND HEADINGS ARE VENTILATED.

Heman Clark, of O'Brien & Clark, the Aqueduct contractors, said to a TRIBUNE reporter in a recent conversation: "No one who has not actually visited the Aqueduct, been down in the bowels of the earth and watched what is going on there with this immense work, can form any true idea of its magnitude and of the manner in which the work is done. Now, this is a project in which I take great personal pride, and I know, speaking on my reputation as a contractor, that the work is being well done. General Newton and his associates have so reported. I wish you would drop up there yourself. If you know a good brick when you see it and good mortar, too, and can tell a stone from a hole in the ground, you can use your eyes to advantage."

Mr. Clark's visitor decided to "drop up" and see for himself. The direct route from the city is up the Sixth or Ninth Avenue Elevated Railroad to One-hundred-and-fifty-fifth-st. There a transfer is made to the New-York City and Northern Railroad, and a fifteen-minutes' ride takes one to South Yonkers, where Shaft No. 18½ is situated. Just after passing High Bridge the visitor gets his first glimpse of O'Brien & Clark's eighteen miles of the thirty-two miles of the water tunnel. Looking across the river some 500 feet above High Bridge, he sees a hole in the rocky side of the hill. This extends 150 feet under the hill and indicates the point at which the tunnel will emerge from under the Harlem River.

Alighting at South Yonkers, the visitor sees several barn-like one-story structures. One of these is a supply store, others are devoted to the machinery which affords ventilation, compressed air for drills and electric light for one section of the Aqueduct. In a general way the machinery, men, measures and means forming the characteristics of the work at one shaft are a sample of those at the others. A complete exhibition of local life on the Aqueduct can be seen in passing by the buildings spoken of and tramping up a dusty road to a point a quarter of a mile above the village. Leaving the dust at this point, the visitor threads his way through a narrow path lined with weeds, stumbles over heaps of rocky excavations from the tunnel, and first comes upon what appears to be another barn. The building is perhaps 50 by 30 feet; it is the "hotel" of a large number of the 200 men at work at Shaft No. 18½. A few rods away is a low tool-house. Beyond this one begins to encounter bricks to the right of him, bricks to the left of him, bricks all around him, piled and well burned. A skilled eye fails to see any soft or poorly burned brick. If there are any such, care must have been taken to leave them out of sight. These are to form part of the lining of the Aqueduct. The visitor here meets General Foreman Dinsmore, a sun-burned man of middle life, spectacled, active, with a grip of iron in his hand and a great deal of intelligence in his eye. A pass duly authenticated induces him to disappear and quickly reappear with a piece of tallow candle and say: "All right. Follow me."

DARKNESS SCARCELY LIT UP.

This is the simple preliminary to a descent into the earth far below the rays of the sun. At this particular spot a special shaft has been sunk by the contractors at their own expense, because a tunnel-man's terror, a soft spot, has been encountered. Quicksand is the main feature of it, and in order to keep that treacherous enemy at bay the safest means is to put down a shaft and shut out the sand by strong timbers. The shaft, therefore, is not numbered, but is adjacent to No. 18½. Ingress and egress are made by means of short ladders connecting narrow landings. Down this hole Mr. Dinsmore disappears, and his visitor, with a little flutter at the heart and a little weakness at the knees, follows hard upon him. One ladder is passed, however, and then the first landing, in comparative calm and comfort. The second leads into dimness, the third into gloom, the fourth into night and mud and dripping water. Still down and down until the last ladder is reached. A detour is made here, the visitor crouches as low as possible, creeps under a huge beam, his hands planted in the mud, and finally, after much groping, he gets his feet on the top of the ladder and with a sigh of relief is informed by a voice somewhere above a glimmering bit of candle light that bottom has been struck.

And what a bottom and what a hole! Drip, drip, drip, is the only sound that the ear first recognizes. After standing a moment the visitor finds a little of vision creeping over him. In the dim candle-light he discovers, what his feet have already told him, that he is standing on a plank. Then he sees an archway extending over him and reaching out into the unknown beyond; far away he now observes glimmering lights, few and far between; then short, sharp grating sounds strike his ear; then comes a puff-puff-puff, strangely like the sounds from a steam drill. Yes, the place is inhabited. Human beings are at work in the remote, uncertain distance.

This discovery breaks the appalling sense of the darkness. An inspection now shows the "accustomed eye" that a plank flooring extends along the bottom of the tunnel, and on either side are narrow tracks for cars which carry bricks and stone and sand and lime. A pipe some six inches in diameter runs along one side near the bottom; near the top is a huge pipe, a foot and a half through. The tunnel seems some eighteen feet high. At this point it is lined and stayed with great timbers, all uniform, all at equal distances—hardly a foot apart—built stanchly up to support the rock and earth above. This is the condition of the tunnel after it has been dug and before the heavy rubble work and the brick lining have been put in.

WATER AND MUD, BUT PURE AIR.

The guide starts out into the darkness toward the lights in the distance. His visitor follows close to his heels. The tallow light flickers and every other second disappears. There is a strong draft of air through the tunnel. There is one good thing about this dark hole—the air is pure and bracing. Mr. Dinsmore explains that this is due to the big pipe above. That is the air shaft. Immense reversible fans outside, propelled by machinery, force pure air through the shaft or exhaust impure air after an explosion. A perpetual current is thus kept up and the air kept pure. The visitor nearly drops through a hole into water and mud while listening to this, and then gropes on. The mud on the planking is over his shoes—so it feels; in reality it is not more than two inches deep; water is dripping, dripping down upon his hat, his neck, his shoulders; he has an idea that he is plastered with mud from head to foot; only the light of day later shows that the dripping water is clear and leaves no stain. At a spot which seems the depth of Cimmerian darkness the guide stops, steps to the side of the tunnel and asks his visitor to take a good look at the base of a huge pillar of wood. The timbers here are heavier than elsewhere; the top of the tunnel is only half as high as back and beyond; the water percolates more freely. "This," says the guide cheerfully, "is the worst spot in the tunnel. The rock here is feldspar and has been disintegrated, as you see. There was a cave-in here." The visitor shudderingly examines the rotten rock and fumbles it while longing for the upper air. The guide assures him that there is no danger. The arch of big timbers could hold up a mountain now. The danger comes when the men are opening up the heading. But even then they protect themselves with their advancing wooden tunnel, so that no lives have yet been lost here from that source. "The greatest danger," says the guide, "is that from falling pieces of rock. A piece big enough to crush a man sometimes drops quietly off."

WHERE AN ELECTRIC LIGHT GLEAMS.

A little further on the welcome sight of an electric light is met. When this is reached Shaft No. 18½ itself is encountered. Here are light and activity. Men are busy sending up excavated rock, receiving loads of brick and sand and sending them along the narrow road into the darkness further down. The visitor has groped through 1,000 feet of darkness, and now sees a part of the tunnel which is completed. All that meets his eye is an arch of brick thirteen and a half feet in height. After the tracks are withdrawn and the brick bottom is laid in, the cylinder will be complete, as it is in other parts of the work.

In order to see the tunnel in its other stages of progress, Mr. Dinsmore starts south with his tallow light, entering on a stretch of tunnel reaching 2,000 feet away. The brick lining is solid for a long distance. Some 500 feet south of the shaft a light is seen moving toward the visitor, a low rumbling is heard, a dark object comes trotting along the right track, and as the visitor takes the other track a diminutive mule, with light attached to the left hame of his collar, trots by, drawing a load of debris, while a workman, decorated with a headlight, urges him on from behind.

"Does the mule ever lose his foothold and tumble into the centre between the tracks?"

"Sometimes," is the guide's short answer.

"Do the mules live down here?"

"Some of them. At some shafts they are let down in the morning and taken up at night."

The end of the brick lining of this section is finally reached. There is an electric light here and men are toiling on rubble and brick work. The timber roofing has been removed here so that the masons can take up their task. The work in all its stages, save that of drilling and excavating, is seen at this point. The hole which is to be lined with stone and brick is exposed. Its walls are of solid rock. This is no "soft spot." Along one part of it the supporting wall of masonry has been built. There is no vacancy behind this. All is made solid with filling of rock. The men seem to be at work in their usual way and do not even pay any attention to their unexpected visitor. Headlights are bobbing here and there, trowels are active, stone and mortar are deftly put together, and a solid wall is rising. A little back of this the brick lining is following fast. It is five layers in depth, the bricks are rapidly and carefully laid close up to the masonry, so that a wall of brick and stone at least five feet in thickness is laid inside the rocky borders of the tunnel.

The visitor next follows Mr. Dinsmore carefully up a ladder and takes a look at the rubble work which forms the filling above the arch of brick. The masonry is solid with stone and mortar. No loam or cheap filling is visible.

A further plunge away from the electric light and into the gloom brings the visitor to the heading. Here the din of the drill is heard and it is seen that the borer is run by compressed air supplied from the six-inch pipe seen long before. The hand put in front of the exhaust air finds that it is cold. This air forms another means of keeping the air in the tunnel pure. There is a slight odor of exploded chemicals, but not enough to be disagreeable. There is a huge pile of debris at the heading. The visitor climbs up over this, wet and slippery as it is, and, stooping so as not to hit his head against the rock above, peers over the debris through an opening seemingly a foot in height, and sees men with headlights, who form the advance guard of workers. They are excavating the loose earth or are making what is known as the "centre cut," which is a V-shaped piece of rock drilled from the centre of the heading, the first step in the onward march of the tunnelling. Electric lights abound here and the patient mule makes hither his pilgrimage to get his load of debris and then trots down the darkness to the shaft 2,000 feet away.

THE OVERPOWERING SENSE OF DANGER.

One wonders in this pent-up place, where the supporting timbers have not yet been placed, whether the roof of rock will not fall in and bury him forever. The feeling is almost overpowering. But the guide's assurances of the contrary give more or less consolation, when the question comes: "Mr. Dinsmore, how far are we below the earth's surface?"

"Oh, about 250 feet."

Absolute confidence in one's being comes back only after a return to Shaft No. 18½, a touch upon the bell, an ascent to the surface, and the sight of the blazing sun assure one that he is among the living, although in a hotter and apparently less pure air than that below. He has travelled 3,000 feet in the new Aqueduct tube, and begins to have a faint idea of what Heman Clark meant by his invitation. Shaft No. 18½ is only one of fifteen under the contract of O'Brien & Clark.

A short distance from the shaft is the machinery building. A huge engine compresses the air for running the drills, and this air in the compressor is so hot that the hand cannot rest on the pipes. Yet when it reaches the drills 2,000 feet away it is cold. A big dynamo machine keeps up the electric supply, while close at hand yawn the mouths of the pipes by which the tunnel is ventilated. All this machinery is the best to be had, as the names of its makers indicate. The entire plant for the fifteen shafts has cost over $500,000 and would pretty well fill a ten acre lot. There are twenty miles of railroad tracks and over fifty miles of pipe connected with the work. From the mouth of the shaft a narrow-gauge road runs to and over immense piles of excavated rock, which give an idea of the extent of the excavations. A crushing machine grinds into fragments the rock taken from below. Here and there are posted rules and regulations made by the contractors. The orders against drunkenness are strict, yet despite all restraints the tunnel-digger will get his whiskey. And he invariably buys the cheapest and most abominable stuff to be found. Two drinks will make him for the time worthless as a workman. To counteract danger from this source great precautions are taken, and walking bosses and foremen are required to be on the lookout and to discharge at once men found intoxicated.

The men can procure provisions wherever they please. They generally go to the nearest store, however. Mr. Clark has issued notices to order-mongers that the firm will not recognize orders on which money or stores are advanced to the men at a higher rate than 5 per cent. He is determined, he says, to protect his men from this iniquity.

There are 200 men, on the average, at each shaft, and they are divided into day and night shifts, which alternate weekly and then exchange, each from day to night, working hours being ten. Most of the men are unmarried.

BABY CARRIAGES FOR RICH AND POOR.

AMERICAN MANUFACTURERS SENDING THEM ALL OVER THE WORLD.

There has been a large amount of evolution in baby carriages in the course of the last few years and the fittest has survived without much of a struggle. When children were not considered of much importance a two-wheeled machine after the model of the "One Hoss Shay" was thought good enough for them. The body of the carriage was a plain square box and it was mounted on two large wheels. The tongue stuck out in front and had an iron rod attached at the centre to support the weight of the vehicle when not in motion. Forty years ago no other form of carriage was seen in this country. The original carriages were imported from England and the few manufacturers here followed them closely. They were cheap affairs and nearly all were without springs. The babies had to sit upright in them, and it was not an uncommon thing, when the machine was at full speed and struck a stone, for the little innocent to get a tumble to the ground. There was little profit in the business then. The prices were low, people generally preferred to carry a child than to trundle it, and there were comparatively few carriages in use. But when children begin to be thought more of on the principle that every boy might be a future President, carriage manufacturers exhausted their ingenuity to render the little ones comfortable. The old gig was laid on the shelf, and a four-wheeled carriage was turned out on springs. It was made so that the child could lie down and kick its heels with the spirit of a free-born subject. After the comfort of the child had been secured a season of ornamentation set in and improvements of various kinds followed.

With the advance in the beauty and luxury of the carriages has come a great increase in the demand for them. No family is now complete without a carriage for the baby. The child who does not own a carriage, even if it is only a soap-box on solid wooden wheels, must be poor indeed. Nice-looking carriages are found even in cheap tenement houses, and in many streets on the East Side, on a pleasant day, the sidewalks are blockaded with carriages, containing all the younger children, packed in like sardines. People who can afford it pay high prices for carriages. One manufacturer reports the top figure of $375. This carriage was somewhat larger than the usual size, and was fitted up with the most expensive plush, with gold trimmings. It had a canopy of lace and gold braid, and was made on a special order from Chicago. A $200 carriage is not a novelty. Many are sold at this figure, but the average price is under $100. A good carriage can be got for $80, and a fair one for $40. Below this price the wood and trimmings are generally imitations. There are $10 carriages and some are sold for less, but they are not worth the money and soon break down. Carriages for twins are made of double size, at an advance of about fifty per cent in the price. One dealer had a carriage made to hold triplets about ten years ago as a curiosity. It was sold a month ago to a man living at Dayton, Ohio, who is the fortunate possessor of three of a kind.

The exportation of baby carriages is large. For this trade the cheap and medium grades are used. They are sent to every quarter of the globe, and the dusky son of a prince in Madagascar can lesport himself in a New-York carriage as well as the little Fifth-ave. aristocrat. The trade is growing both at home and abroad, and this country leads the world in the style and quality of carriages made.

Carriages have been made after many odd designs. Jingling bells, musical sounds, imitations of birds and animals, have been produced in carriages by the aid of mechanical appliances. They never have taken well or been in demand. The latest form of carriage is fitted with adjustable wheels and rockers so that it can be used as a cradle at will. It has not been put on the market yet, but it is expected that there will be a ready sale for it.

WHISKER PHILOSOPHY.
From The Cincinnati Graphic-News.

Two fallacies are in vogue regarding the whisker question; one is that a thin-faced man should support side whiskers to "widen his face"; the other that a round-faced fat man should favor long chin whiskers "to lengthen his face." Both are adopted on the counteraction and antidote principle, but are wrong as wrong can be. A man with a sharp chin exposed is thin and appears thin, in spite of his Burnsides. And a moon-faced man gives himself a humorous and clownish appearance by wearing a long sharp tuft on his chin. The principle of conformity should be observed or a whole-sale change made. A thin man, for instance, should wear chin whiskers, no whiskers at all, or a full beard. He no more looks well with side whiskers and a peaked chin than he would to stuff his chest and not his calves or his calves. To look well he must be uniformly and consistently thin, or he may modify it by a complete beard.

A fat man should be smooth faced, or wear universal whiskers pretty closely cropped. The well-proportioned and moderately full-faced man may vary the style and quantity of his whiskers with impunity, so far as the thin or broad appearance is concerned; but even he has certain manifest principles to observe on other lines. For example, it may be set down that no one looks well in a straggling growth. They should be as neatly and carefully trimmed as the head, and, if anything, more frequently. A very short beard gives an animal look; if very large it indicates vanity or crankiness.

To part chin whiskers in the middle is not quite so bad as to part one's hair in the same way, but gives to a lesser degree a weak and feminine appearance. A receding chin, a scar or a small, insignificant mouth should be hidden by a beard. But many a man of pleasant expression and strong features buries half the influence of his personal address under a tuft of expressionless hair. It is not a new idea that orators, slugers and public readers should be smooth-faced.

SIX HUNDRED PRETZELS A MINUTE.

THE BIG MILL UP-TOWN THAT IS TO MAKE NEW-YORK THE CENTRE OF PRETZEL MAKING.

New-York is likely soon to wrest from Philadelphia the honor it has long enjoyed of being the greatest pretzel producing city in the country. Pretzels have been made here for years by a dozen or more shops, but in a limited way, with hand-power employed. This prevented the New-York firms from seriously competing with the Philadelphia pretzel bakers, who use machinery to a large extent.

Until recently the pretzel, despite its toothsome and appetizing qualities, found no place in the high-priced barrooms, and was left almost entirely to the German beer-shops and the fruit stands. A year ago, however, a small pretzel was introduced by a few fashionable drinking resorts, taking in a measure with them the place of the cracker. The substitution was so successful that, in this reduced form, the pretzel became an established barroom delicacy. This caused a great increase in the demand, and now a Third-ave. baker is building a big pretzel mill in East Seventy-fifth-st., which will be equipped with apparatus capable of turning out 600 pretzels a minute. The mill will be running in a few weeks and then Philadelphia pretzel bakers may well get down their sackcloth and ashes, for their glory will have departed from them.

It is estimated that 200,000 pretzels are devoured in this city daily, or 730,000,000 a year, costing the saloons and stands over $160,000 and the public twice that sum. While Philadelphia has been the centre of this industry, it has had for years a formidable rival in Pottsville, Penn., which is celebrated all over the Eastern part of this country for its pretzels. There are half a dozen bakeries there that work at nothing else, and some of these have a large trade with this and other cities. It is said that this town obtained its high reputation for pretzels through having them peddled on all the trains passing through there. They were offered fresh and crisp to the hungry traveller, and it was not long before Pottsville pretzels got a reputation.

Where were pretzels first made? This is a question that has been almost as hotly disputed as the birthplace of Homer. The best claims to the honor of having originated them are put forward by Toltz, a little town near Munich, in the Bavarian Tyrol, the arms of which are two gilt pretzels tied together with a blue and white cord. It is a remarkable fact that the pretzel is far more popular in this country than on the other side of the Atlantic. Tourists often complain that they cannot get any in Germany. This is due to the fact that pretzels are seldom sold with beer in Germany, nor, as a rule, at the fine cafes patronized by foreigners. Many people seem to think that the summer is the best time for pretzels. This is a mistake. They belong like the oyster to the cool months. Their thirst-producing effects are not needed during the torrid term, and as an article of diet they are a trifle heavy for the summer. For this reason they are shunned by the wise while the mercury remains elevated. Pretzels require a brisk, hot fire in baking, and careful watching as well, in order that they may get the right degree of crispness, for a soft and doughy pretzel is an abomination.

MARRYING SCIENTIFICALLY.

CHOOSING A WIFE ON ANTHROPOLOGICAL PRINCIPLES.

From The London Spectator.

Sir George Campbell's proposal at the British Association to supersede love-making as a preliminary to marriage, and to make marriage instead a great institution for improving the physique and the morale of the human race, would have been somewhat more scientific than it was, if he had been able to suggest any specific, first, for getting rid of the deep-rooted tendency in young people to spoil these beautiful plans by falling in love without paying the least regard to them, and next, for determining what the combinations of character should be through whose union the noblest offspring might be expected. There is the double difficulty to his proposals—first, that any young man or woman who would avoid falling in love till all the requisite conditions of appropriateness for Sir George Campbell's ends were fulfilled would be a prig whom no one of any sense would ever be disposed to marry; and next, that even if it were not so, no man, however wise, could judge of the moral suitability of one nature to another at all better than it is determined now by the comparative accident either of a youthful passion or of the parental wishes. Just imagine the effect on any young man or woman possessing any spirit and any healthy instincts, of being addressed by an anthropological papa or mamma in language such as Sir George Campbell might perhaps approve—thus for example:

"I am bound to warn you, my dear boy, that your physique, though excellent on the whole, is weak, if at all, in liability to a sluggish liver; and what, therefore, you must look out for in the first place in a wife is a girl whose family doctor will assure you that it has never been any weakness of that kind in her family. Besides this, you must be aware that, sweet-tempered as you are, you are a little disposed to levity and too fond of amusement. If, therefore, you would really improve your species, and I need not say that I hope that this is your most earnest desire, and would give to the world children who could justly boast that they are better than their father, you must look out for a wife of earnest and serious disposition, who always possesses amusement to draw and who will stay away from a dance without a murmur to nurse a sick brother. Think, my dear boy, of these things before you permit yourself to fall in love. Be sure that you know what the constitution of the family is before you allow even admiration to stir your heart. And next to the constitution, and especially the freedom from bilious tendency, be sure of the sense of duty in your proposed wife. If, after securing these great requisites, you like to take sweetness, and temper, and beauty into account, there can be no objection; but with your own great sweetness of disposition, I think the former is of less importance. You might afford to have a wife of nasty temper; you could not afford to have a wife with any element of frivolity in her, with due regard to your posterity."

A young man who would not be driven by such an address as that into a little scorn for his father, and a positive determination to ignore all such nonsense in satisfying his own heart, would be a poor sort of creature. And the reason is obvious. If young people are to enter into the closest ties of life guided by such considerations as these, they must first be in a condition of mind in which it would be all but certain that they would be utterly indisposed to enter on these closest ties at all. It is quite true that there is always risk in forming such ties. Few young people really know each other, or can know each other, before marriage, sufficiently to round so close a relation as that of husband and wife on mere knowledge. Nay, without a strong attraction prior to the knowledge, the knowledge would never really come at all. In marriage it is love which brings knowledge at least ten times as often as knowledge brings love. Conceive a man influenced by the class of considerations to which Sir George Campbell would give precedence, and you conceive a man who would not be in love, and who therefore would probably make infinitely worse blunders in trying to judge of the woman he thought of making his wife, without love, than he would even have made—and doubtless he might have made many—by falling in love first and learning the truth about her afterward. Hardly for us, even the mistakes of love are apt to be more beneficent than the accurate vision of more impartial criticism.

Probably, indeed, in no country in which mutual choice has been recognized as the highest guarantee for the happiness of marriage, could parental authority ever again take its place; but still less could it take its place if the parental authority chose to ground itself avowedly on anthropological principles, and to apply such quack tests of suitability as we have described. After all, as the rebellious youth would say, even chemical affinities would never have been discovered by the chemist's inspection of the separate elements. No chemist could ever have discovered in what proportions, or under what conditions, hydrogen and oxygen would combine, by merely inspecting them. It was by their actual combination, and by that alone, that the stability or instability of their union became a thing that could be tested. And what is true of chemical affinity must be infinitely truer of the much deeper and more subtle affinities in human nature. It may easily happen that the attractions which first show themselves do not turn out to be all that was hoped, or do turn out to be of no real stability or worth; but at least they open the way naturally and favorably for the development of much closer affinities, while the anthropologist's notion that the element of love should be dispensed with, till the science of solver criticism has been obtained for it, would be very apt to engender an initial mutual repulsion, instead of that great wave of attraction which sweeps away at least the first reticences and reserves, and makes mutual knowledge easy and possible.

The great weakness of the many ambitious sciences of modern days is that their devotees are so eager to substitute the feeble lights they elicit for those great instincts of Nature which, though not founded on theoretic knowledge at all, are full of that unconscious guidance of which both our bodily and our mental life is in very large proportion made up. Would a child ever learn to walk, if he had to follow accurately the directions of the teachers of statistics and dynamics before he could learn to balance and to propel himself? Would he ever fall into the discipline of civilized society, if he had to guide himself by the philosophy of that society—a philosophy which is so far behind the social art which it tries to explain. It is just the same with these empirical teachers of the true principles by which marriage may be made to subserve the improvement of the species. They recommend principles which are simply impossible, because if they could be really followed, hardly one marriage in ten would take place at all; and because if they were followed, ten mistakes would be made for every one which is made now, and probably mistakes ten times as serious as well as ten times as numerous.

A SPLENDID ANIMAL.
From The St. Louis Globe Democrat.

Dr. Allen, of New-Marysville, Ind., has a wonderful dog. It is a large black-and-white Newfoundland. This faithful animal performs its daily work with the utmost promptness and regularity. This consists in keeping the kitchen wood-box filled. At intervals through the day it will report to the kitchen and view the wood-box. Whenever the supply of fuel is getting low he proceeds to the yard, grabs a stick in his mouth and takes it to the kitchen, repeating the operation till the box is filled again. It keeps a special lookout on wash days, and at other times when an unusual quantity of wood is being used, and never lets the box get empty as long as there is a supply in the yard.

A WISE DOG.
From The Lockport Journal.

There is a wise dog in Morden, Manitoba. He slipped his collar the other day, and when his master called refused to come, evidently fearing punishment; but in the night he returned, managed to get the collar over his head, and in the morning was found chained to his kennel, wagging his tail in conscious virtue.

ALAS!
From The Chicago Ledger.

"Jessie!" "Yes'm." "What are you crying for?" "Laura hit me on the head." "Where?" "That's the matter. I tried to keep the mark till I got home to show you, and, boo-hoo! it's gone away."

INSPECTOR BYRNES'S BOOK.

CRIMINALS AND THEIR WAYS OF WORKING.

SKETCHES AND PORTRAITS OF NOTORIOUS THIEVES—EXTRACTS FROM THE WORK.

Every class of society feels an interest—more or less morbid—in the strange phases of criminal life which unfold themselves in a great city like New-York. While this interest is capable of being exploited for selfish ends by the writer of sensational tales, it offers a legitimate field for the author who seeks to interest his readers while he puts them on their guard against the methods of the criminal classes that flourish on every hand. Thomas Byrnes, Inspector of Police and Chief of Detectives, has had this object in view in the preparation of his work, "Professional Criminals of America." Inspector Byrnes has attempted to describe, for public information, the various classes of criminals and how they work. This is supplemented by short sketches of the most notorious criminals in each group. To the eye of an experienced police official the work of a clever forger or safe burglar is as characteristic as the style of a well-known author to a competent critic. Hence Inspector Byrnes's book will be to the police what a literary dictionary is to the student. But one of the chief aims of the work is to protect the public. This object is admirably accomplished by the introduction of heliotype reproductions of the features of the most notorious criminals as they appear in the Rogues' Gallery at Police Headquarters. The value of these portraits to the public may be judged by the consternation which their publication spreads among the criminal classes. A notorious thief, who had returned to the country after a sojourn of several years abroad said to the Inspector the other day:

"I hear that you are going to publish a book, Inspector."

"Yes, it will be out soon."

"Will you have all the mugs in it?"

"Every man's."

"Blankety blank, is that so! Well, a man had better get all the money he wants before that book is out. Afterward he'll be too well known."

The Inspector's style is simple and direct, while many of the facts of which he has been obliged to make record read like a romance of Emile Gaboriau. Twenty-three years' experience in the Police Department of New-York furnishes material of more startling interest than all the flights of imagination of the writer of fiction.

The book will soon be issued from the press of Cassell & Co., of New-York. The introduction has been written by Recorder Smyth, who says he has no doubt that the work "will prove an important medium in the prevention and detection of crime."

HOW BANK SAFES ARE BROKEN OPEN.

Some extracts from Mr. Byrnes's book will show how he treats the various classes of crime and of criminals. Bank burglars, for instance, those adepts with the "jackscrew" and the "drag," are treated of in a special chapter. Here are some of the Inspector's comments upon their methods:

Some burglars make their own outfit, but almost any blacksmith will make any tool he is called upon for, if its construction is within his capacity, without asking any questions about the uses to which it is to be put, provided he gets his price for it. It is, of course, more than probable that he guesses the use for which it is intended, but that, he thinks, is not his business. The making of such implements is, as a rule, confined to those mechanics who are actually in league with the criminals who expect to use them. The heavy and unwieldy tools of years ago have been abandoned by the modern bank robber with his new inventions. While some bank thieves use the spirit-lamp and blow-pipe to soften the hardened metals and take the temper out of the steel vault doors or cases, others use only a small diamond-pointed drill. Then again, others, who do not care to spend time manipulating the intricate combination, use a simple sort of mechanics, technically called the "drag" and "jackscrew." The former, simple as it looks, is extremely powerful and so quiet. By means of a bit a hole is bored through a safe door; a nut is set inside; the point of the screw passes through the nut, which rests inside the surface that has been bored; then the screw is turned by a long handle, which two men can operate. As the screw turns, the nut is forced forward further and further. It is a power that hardly any construction of safe can resist. Either the back or the front must give way.

The "jackscrew" is rigged so that by turning it with noiselessly force into the crack of a safe door a succession of steel wedges; first, one as thin as a knife-blade; soon, one as thick as your hand; and they increase in size until the hinges give way. Where the size or the location of the safe or vault to be forced precludes the use of these machines, and explosion becomes necessary, dynamite and nitro-glycerine are used with the greatest skill, and with such art in the deadening of sound that sometimes an explosion which rends asunder a huge safe cannot be heard twenty yards away from the room in which it takes place.

The patient safe robber is aware of several ingenious ways of picking combination locks. In following their nefarious calling these men attain a delicacy of feeling by which they are able to determine to a nicety the exact distance necessary to raise each tumbler of the lock. The burglar masters a combination with almost mathematical accuracy, and manipulates its complex machinery with the same dexterity and precision that a music-teacher touches the keys of a piano. He is trained to detect one false note in a swelling chorus produced by the click of reverberating ratchets within the lock, and marks the period and duration of the drops. When they come across some new kind of lock, they will manage to get possession of one, whatever its cost, and whatever round-about means may be necessary to get hold of it, and, taking it apart, will study its construction until they know its strong and weak points, and how to master it, just as well as its inventor or maker could. They are always on the alert to utilize for their purposes every new appliance of power.

A WARNING TO CASHIERS AND TELLERS.

The Inspector's chapter on bank sneak thieves will probably have a mournful interest to the cashier or the paying teller of many a country bank, and there are some bank employes in the cities who will profit by a careful perusal of the methods of these slippery gentry. This is what Mr. Byrnes says about them:

For many years bank sneak thieving flourished to an alarming extent in New-York City, and under the old detective systems it seems impossible to put a stop to that form of robbery. . . . While it may have been true that the detectives in some cases were not as vigilant as they might have been, subsequent developments have demonstrated that the financial quarter of the city was in the past but poorly protected. Well-known thieves no longer haunt that prescribed locality, and since the establishment of a sub-detective bureau in Wall-st., six years ago, not a dollar has been stolen from any of the wealthy concerns in the great money centre by professional criminals. The inauguration also of a patrol service by experienced detectives during business hours and the connecting by telephone of all the banking institutions have been the means of putting a stop to the operations of that particular class of rogues known as bank sneak thieves. Still, in the other cities of the country, where these precautions which have proved such a great preventive against the perpetration of crime have not been adopted, these thieves succeed in carrying on their depredations and reap rich rewards. Bank sneak thieves are all men of education, pleasing address, good personal appearance, and are faultless in their attire. With astonishing coolness these determined fellows commit the most daring thefts. The handful of successful rogues who have attained such exalted rank in the criminal profession despise the thousands of other robbers who live by commission of small crimes. . . .

In robbing country banks, where the clerks are few, and generally during the dinner hour the cashier or paying teller is the only man left in the institution, sneaks have a simple and easy scheme for plundering. One first enters the bank and engages the cashier or teller in conversation upon a subject in which the latter becomes deeply interested. While this is going on a carriage halts at the door, and the driver is sent in to tell the official inside that a gentleman who has hurt his leg and is unable to walk desires to speak to him outside. The unsuspecting cashier or teller excuses himself to his first visitor and goes out to speak to the injured man, and in his absence the bank is ransacked. Robberies of this kind are committed quite frequently, and gangs of sneaks travel all over the country with a circus or wild beast show. In the towns and small cities the parade of the performers creates considerable excitement, and when the cavalcade happens to pass a bank, the clerks, cashiers and paying tellers seem to forget themselves and run to the windows to look out. The sneak thieves take advantage of the opportunity and quietly slip into the institution. In a twinkling their work is complete, and before the procession has passed they have escaped with whatever they could lay hands on.

If, while watching about a bank, a large check is cashed and the customer turns aside to a desk to count the money, the rogues generally succeed in getting a portion of the cash. The thief will drop a bill upon the floor, and as the man has arranged his pile of notes, the criminal will politely tell him that he has dropped some of his money. When the former stoops down to pick up the greenback, the sneak will steal a portion of the cash upon the desk, and walk off unquestioned. They are not greedy in ventures of that sort, but they secure enough, with almost comparative safety, and are content. Heated arguments invariably follow thefts of this sort. After counting his money, the depositor goes back to the teller and insists that he is short. The teller is equally positive that he paid out the proper amount, and in most cases a disruption of commercial relations is the culmination of the dispute.

THE WILY WAYS OF THE CHECK-RAISER.

In the course of the book Mr. Byrnes often has occasion to speak of the marvellous ingenuity with which criminals plan the combinations leading up to their crimes. One of the methods of operation of check-raisers furnishes a striking illustration of this. The following extract is from the chapter on forgers:

As compared with other criminal classes the number of professional forgers in the United States is very small. All told there are not more than two dozen expert penmen and engravers who prostitute their talents by imitating the handwriting and workmanship of others. Few as are these swindlers, occasionally they suddenly launch forth some gigantic scheme flooding the principal cities with their spurious and worthless paper. The operations of the forger are not by any means confined to this country and Canada. The bankers of Europe have been fleeced by them and conspiracies hatched here have almost caused financial panics in England and on the Continent. . . .

A common, yet dangerous scheme, which has been carried out many times with success by check raisers, is like this: A member of the gang is first sent to purchase two drafts payable at a bank in another city. One is made out for a small amount and the other for a considerable sum. In a few days the purchaser returns the large check to the bank saying that he was unable to use it as he had intended. The amount it calls for is refunded to him and the redeemed check in most instances destroyed. Then, having a clear field before him, the forger forwards the small draft raised to correspond in number to the large one to some distant city for collection. As the genuine draft has in the meantime been torn up, there is rarely any difficulty in getting the raised one cashed, and sometimes the deceit is not discovered at the bank of issue. Many cashiers have spent hours in going over their books on account of a shortage, and all the trouble and annoyance was due to a raised check.

The photo-lithographic process of check counterfeiting first came to light in this city a few years ago. The checks were presented by a smart lad who invariably succeeded in cashing them. He was caught at last laying down one of the worthless notes, and had it not been for an accident he might have then escaped. The cashier to whom it was presented, while examining the draft, noticed that it was blurred, and on submitting it to experts, his suspicions were confirmed. It had been prepared with such accuracy that the stamp on it could not be distinguished from the authentic one. The forger, however, had not been satisfied with his work, and essayed an improvement by the use of chemicals, which in the warmth of the carrier's hand had blurred and discolored the paper. The lad when cornered made a clean breast of it, and said that his brother-in-law had employed him to procure genuine checks and carry forged paper to the bank.

THIEVES WHO HAUNT THE BIG HOTELS.

Here is food for thought for the travelling public that puts its trust in bolts and locks and chains:

The class of thieves devoting themselves to robbing rooms in hotels and in fashionable boarding-houses operate according to circumstances and always have their wits about them for any unexpected emergency. The successful ones are men of respectable appearance, good address, and cool and daring fellows. . . .

Until he has accomplished his purpose the hotel thief pursues his prey from one establishment to another with a persistency that knows no faltering. He makes it a specialty to scan the newspapers carefully, and keeps himself posted on the latest arrivals, the rooms they occupy and other data of interest. The coming and going professionals, particularly female theatrical stars, salesmen, bankers and bridal parties, and all persons likely to carry valuable jewelry and trinkets or a large amount of money, in this way are noted and are objects of special importance and solicitude.

When the unsuspecting prey fatigued by travel gives proof of his unconsciousness by deep stertorous breathing, the hotel thief steals silently from his hiding place. A slight push may let him enter the apartment, or it may be necessary to use a gimlet and a small piece of crooked wire to slide back the bolt, or a pair of nippers to turn the key left on the inside in the lock, from the corridor. Some times as many as a dozen rooms in the same hotel have been plundered in one night and none of the watchmen saw or heard the thief. The old style of climbing through transoms or unkeyed windows is at present not much in vogue. The hotel thief can carry his entire outfit in his vest pocket and can laugh in his sleeve at the common bolts and bars. The much boasted of chain-bolt can now be drawn back from the outside with only a piece of silk thread having a match tied to one end of it.

The shooting back of the old-fashioned slide-bolt from the outside of the apartment was for many years a bewildering mystery. As there were no marks to be found on the door in most cases when a robbery was reported, the hotel proprietor would frown and the clerk leer; both facial contortions being meant to express suspicion and incredulity. Many times the unfortunate victim has been turned away as a cheat and a fraud who wanted to swindle the hotel out of his board bill or else to bring a suit for damages on a trumped-up charge.

HOW THE PICKPOCKETS WERE FOILED.

Prevention is better than cure. Thus the Inspector tells how this excellent principle was put into practice:

A year ago members of the light-fingered fraternity flocked from all parts of the country to New-York City, expecting to reap a rich harvest among the immense gathering at the funeral of ex-President Ulysses S. Grant. The perfect police arrangements, however, frustrated the plans of these rogues and notwithstanding the fact that there were hundreds of thousands of people that day along the route of the funeral procession, not a single watch or pocket-book was stolen. Never before in the history of the Police Department had there been such a clean record. The day before the funeral all the professional pickpockets then in the city were arrested upon suspicion, and the police magistrates, when the precautionary scheme was explained to them, concurred in the flank movement against the rogues and held the prisoners. The alarm was then raised, and just as soon as the news had been spread beyond the limits of the city, the hundreds of criminals on their way to New-York gave up the project, left the trains and scattered in another direction. A few, however, who were reckless enough to attempt to reach the metropolis, found detectives awaiting them at the several depots. They were taken in charge and were kept safely housed at the Police Central Office, the various precinct station-houses and the Tombs Prison until the funeral was over and all the strangers had departed for their homes. When there was no one to prey upon