SOME NEW BOOKS.

The Shenandoah Valley in 1864.

It is not surprising that we should be indebted to civilian authors for the most creditable contributions to the series of monographs published by the Messrs. Scribner under the name of "Campaigns of the Civil War." There are obvious reasons why those who have taken an active part in military operations should not be expected to describe them with judicial soberness and comprehensiveness, and with literary effectiveness. As actors and eyewitnesses the testimony of such men is of course indispensable, but here stop, as a rule, their qualifications for the office of history. There were some famous exceptions in ancient times, when men might combine, far more frequently than they can now, judicial, legislative, and military experience; but Xenophon and Cæsar have had no modern counterparts. If an approach to the blending of gifts essentially diverse could be reasonably looked for anywhere, it would be in the volunteer armies, which, during our civil war, drew not a few of their recruits from the bar, the rostrum, and the professorial chair. There are accordingly two or three volumes in this series, which, although penned by men who were a part of what they saw, satisfy in a commendable degree the specific conditions of historical writing. This was notably the case with Gen. Palfrey's book on "The Antietam and Fredericksburg." But it must be said of the majority of the companion studies undertaken by military critics, that, however serviceable they may prove to the future historian, regarded as digests of perishable material, they fail to fulfil a prime requisite of narrative composition. Accurate they may be, but they are not vivid; they are not readable, in brief, but dull as the official reports from which they are compiled. Now, we feel quite sure that the aim of the publishers of this series was not purely philanthropic. They meant that these volumes should not only serve as books of reference for the patient and inquiring student, but should be perused with interest by the general reader. From the latter point of view, it is a matter of regret that more of these useful monographs were not executed with the literary skill which distinguished the account of "The Army Under Pope," by Mr. John C. Ropes, and which is equally conspicuous in the latest series—*The Shenandoah Valley in 1864*, by Mr. George E. Pond.

In one respect, indeed, Mr. Pond's narrative will be found even more intelligible and attractive for the mass of readers than was Mr. Ropes's book. It evinces an equal amount of industry and expertness in the accumulation, winnowing, and balancing of evidence; it is equally free from sectional animosity, or the prejudices infused by military associations and personal sympathies; it exhibits, perhaps, the same power of wide-embracing and penetrating vision, the same happy faculty of summing up in a sentence or a phrase the essential significance and true lesson of an event. But the narrator of the events which invested the Shenandoah Valley in the year 1864 with such lively interest has recognized more fully than the historian of "The Army Under Pope" the imperative necessity of topographical elucidation. If campaigns are to be understood at all by the civilian reader—and certainly the object of this series was to render them intelligible—he must be enabled to keep steadily and distinctly in view all the difficulties and peculiarities of the ground which gave direction to military movements, and often controlled their result. For such indispensable illumination it will not suffice to enumerate oreographical details; their import and bearing must be impressed upon the mind with the art of the landscape painter. Of the requisite pictorial presentation of the physical facilities or obstacles encountered by the strategist, Mr. Pond's book is the first adequate example in the series of which it forms a part. The utility of such information is nowhere lost sight of by the author, but we would especially direct attention to the introductory pages of his first chapter, as admirable illustrations of the benefit conferred on the ordinary reader by minute and vivid physiographical description. We have there set before our eyes with rare lucidity and nice distribution of emphasis all those features—whether derived from nature or superposed by man's activity—which imparted supreme strategic importance to the Shenandoah Valley, with relation both to the Federal capital and the scene of Grant's operations in the valley of the James. By the help that Mr. Pond has given him, any intelligent person can follow the actual vicissitudes and discern the ultimate consequences of the campaigns of Early and Sheridan with a distinctness which clothes the narrative with an exceptional degree of instruction and of charm.

Of the cautious and impartial judgment on the conduct and result of military operations, in respect of which this writer reaches the same high level as was attained by Mr. Ropes, our readers will be glad to see some noteworthy examples. Thus, of the battle of Newmarket, it is pointed out that Sigel's defeat cannot be palliated by the assumption of a marked disparity in the forces engaged, yet Mr. Bond is careful to add that the Federal commander spared no personal exertions to redeem the day, that he speedily rallied his troops, and declared himself ready for a renewed forward movement, and that the plan recommended to his successor, Hunter, by Grant, had been proposed by Sigel. Again, while the author of this narrative studiously refrains from describing Hunter's Lynchburg campaign as abortive, and is even willing to pronounce it essentially successful in respect of inflicting great injury upon the enemy, he does not conceal his opinion that equal advantages might have been gained and some subsequent loss averted by a different objective—by a movement, in other words, toward Charlottesville and Gordonsville. Before leaving this part of his theme he observes, with a touch of dry irony, that Hunter's so-called success eliminated the defensive factor from the valley more effectually than Sigel's failure, and, as a matter of fact, invited Early's advance on Washington, which, by the hopes it rekindled on both sides of the Atlantic, helped to sustain the Confederate cause for another year.

The position taken by Mr. Pond regarding another vexed question will further exemplify the temperate and trustworthy character of his decisions. Could Gen. Early have taken Washington on July 11 and 12 of the year 1864, but for an ill-timed collapse of the energy and audacity which had previously marked his invasion of Maryland? Mr. Pond is of the opinion that Early could not have expected, in setting out from Lynchburg, to seize by a petty side stroke the chief prize of war. His real purpose is pronounced to have been, not the capture of Washington, but such an alarming demonstration against it as would break up the campaign against Richmond. He must have taken for granted that the Federal capital would be reënforced from Grant's army, for it would have been an inexcusable want of generalship to have left that city undefended. It was incredible that Early's troops should march on foot faster than a rescuing force could be transported by steaming day and night from Fortress Monroe. As a matter of fact, part of the contingent forwarded by Grant had actually reached Frederick before Early came in sight of Washington. Their arrival was perfectly well known through his prisoners to the Confederate commander, and it is therefore the judgment of the author of this narrative that Early not only acted for the best, but knew he was acting for the best, in withdrawing his expeditionary column. Mr. Pond, however, does not omit to say that could Early have foreseen the tardiness with which reënforcements would be despatched from Fortress Monroe, he would probably have wasted no time in demonstrations against Sigel and Harper's Ferry, but, hurrying forward, would have crossed the Potomac at Edward's Ferry, and reached the capital four days sooner than he did. In that case the conviction is forced upon the reader of this volume that he would have taken the city, with results whose magnitude it is not easy to overestimate. As it was, Mr. Pond does not hesitate to acknowledge that, "while the Federal Government was flattering itself that it at last held secession in an 'anaconda coil,' a discouraging similitude to the campaigns of previous years had been unexpectedly lent to the military situation by the new invading column which camped in the suburbs of Baltimore and knocked at the door of Washington." Unquestionably Early's bold march revived for a time the sinking hopes of the South, and among minor benefits resulting from the movement it enabled the Confederate farmers to harvest in peace a large part of the year's crops in the Shenandoah Valley. Yet, after all, the success achieved was transient and superficial. "The invasion," says Mr. Pond in his final discriminating comment on the incident, "had drawn a corps from the Petersburg trenches and was destined to aid in prolonging the war to another year; but it had not forced off the clutch that was only to be loosened after Appomattox."

The Result to which Religion is Tending.

By way of sequel to his work on the historical evolution of religion, which we noticed about a year ago, the celebrated German philosopher, Eduard von Hartmann, has recently published a volume of more than 300 octavo pages, which he calls "The Religion of the Spirit" (*Die Religion des Geistes*), and in which he attempts more fully than in his former book to forecast the result to which he thinks religion is tending. Abandoning the field of history, he analyzes the religious sentiment itself, and, from its essential character, prophesies its ultimate destiny.

As primitive man was, by a sense of his dependence upon nature and of an inability to control its forces, driven to appeal for help to imaginary higher beings, so civilized man is by a like sense of his impotence led to worship what he calls God. All his knowledge, all his science, all his skill and prudence are unavailing to secure happiness, or even to ward off disappointment, sickness, old age, and, finally, death. The more cultivated and intelligent he is, the more clearly he sees his failure to attain even his own imperfect ideal, and the more keenly he feels the wide gap that separates his highest virtues from true righteousness. Like the savage, he, too, in his extremity, turns to a power above him, and seeks its aid, not to obtain physical good, indeed, but those spiritual blessings which he prizes above food, clothing, and shelter.

The root of all religion is therefore the relation of an inferior to a superior, of a dependent upon an independent, of one having need of help and support toward one able to afford help and support. In forming to themselves the idea of this superior, independent, and help-affording being and of his qualities, men differ according to their mental constitution and according to the view they take of the world about them. Hence the varieties of religion which have always existed, and which still continue to exist; and hence the impossibility of reducing them to unity. Hence, too, what is called the conflict between science and religion. A faith which originally embodied accepted views of nature, and was therefore in entire harmony with science, gradually becomes crystallized in formulas, which science in its onward progress discards. Religion strives to accommodate itself to the change so far as it can without abandoning its ancient ground, but sooner or later it reaches the limit of elasticity, and the chain by which it holds intelligent minds is snapped asunder. The particular form of religion involved is, of course, badly damaged by the catastrophe, but religion in its essence remains unharmed, and profits by its deliverance from the excrescences which had been fastened upon it. As John Fiske well expressed it some years ago in his little essay on the Unseen World, "When we look beneath the surface of things, we see that in reality there has never been any conflict between religion and science, nor is any reconciliation called for where harmony has always existed. The real historical conflict which has been thus curiously misnamed has been the conflict between the more crude opinions belonging to the science of an earlier age, and the less crude opinions belonging to the science of a later age. In the course of this contest, the more crude opinions have usually been defended in the name of religion, and the less crude opinions have invariably won the victory; but religion itself, which is not concerned with opinion, but with the aspiration which leads us to strive after a purer and holier life, has seldom or never been attacked." At all events, religion is an historical and ever-present fact, and even if it were all a delusion, it is none the less a phenomenon worthy of scientific examination. It is in this light that Hartmann regards it, and he expressly disclaims any partisanship or desire to create a practical agitation.

Assuming as a starting point, therefore, the reality and the persistency of the religious sentiment in man, our author proceeds in that thorough and exhaustive manner, which is his distinguishing peculiarity as a writer, to analyze its functions, first as representation, emotion, and will, and then as grace, revelation, redemption, and sanctification on the part of God, and faith, belief, self-surrender, and holiness on the part of man. Next, he expounds his idea of the manner in which man's sense of slavery to the natural world is superseded by the religious sense of dependence upon God, and of the freedom thus attained. Then comes an explanation of evil as the conflict between man's imperfection and the ideal perfection he sees but cannot attain, with an analysis of the sense of guilt, and of the feeling that a deliverer is needed. In conclusion he exhibits the practical workings of religion as a corrective and a healing agency, with suggestions for the improvement of the methods now in use. Upon all this he bases his prognostications. It is impossible for us, within less space than he has himself taken for it, to reproduce all the steps of his argument. We can only set forth his leading ideas and the conclusions at which he arrives.

The form in which Hartmann thinks religion is destined ultimately to survive he calls Concrete Monism. If we understand him rightly, he means by this phrase to describe a mutual relation of man to God and of God to man, which makes each individual human being a unit, or *monos*—(whence *monism*)—compounded or concreted of the divine and of the human natures. In this aspect God is not a distinct, self-conscious personality, to whom a man can say "thou" as he can to another man, but an unconscious indwelling power which becomes conscious only in man's consciousness through the limitations of man's imperfection, each individual man being thus a functional manifestation of God. Buddhism and Brahmanism also make God one with the individual man, but they do so by denying to man substantial existence, and represent him, together with the whole of creation, as nothing but an unreal illusory seeming, behind which God stands as the sole reality. Hence their monism is abstract, and not concrete. The ancient Egyptians, like some modern pantheists, held that man and God are of the same common nature, though of different degrees of purity and subtlety, men being units by themselves, and the gods being units by themselves. This Hartmann calls naturalistic monism. Our prevalent Christian theology teaches that God is of one nature, and man, in common with all other created things, of another, and it may therefore be described as theistic dualism. Of these various views concrete monism alone, according to Hartmann, meets all the necessities of the case and supplies a basis for intelligent faith.

Concrete monism exhibits, also, the relation of God to the universe as being precisely like that of God to man. God is neither the sole substance of which the universe, according to abstract monism, is the illusory projection, nor is he mere natural force, as in naturalistic monism. Nor yet, again, has he created the universe into a temporarily self-subsisting entity, possessing inherent qualities and properties of its own, and governed by him either according to its laws or in disregard of them, as our popular theistic dualism teaches. He must be thought of as one with the universe, dwelling in it, working through it, and even feeling and thinking by means of it. The universe on its part must be regarded not as God, but as the manifestation and working of God, and, though dependent upon him for subsistence, yet as being real and substantial. It, nevertheless, had a beginning, and will have an end. If it never had a beginning, the process of perfecting it must have long ago been completed, and it can endure forever only upon condition that perfection never shall be attained. For, the goal for which both God and man are striving, being the obliteration of all conflict between the diverse functions of the universe, its attainment involves the obliteration both of the distinctness of the universe from God and of the self-consciousness of God in the universe; and thus again the end of the universe as a reality.

That this latter point may be more clearly understood, it must be explained that, according to Hartmann's pessimist philosophy, the sense of our consciousness is a sense of our separation from God, which is the essence of all evil. We are what we are just so far as we differ from God, and because we differ from God we are sinful and unhappy. We desire to be happy, but since there is no happiness so long as there is a want of perfect unity with God, we can attain the object of our desires only by a process which merges our individuality in that of God, and when this takes place we cease, of course, as individuals, to exist. The same thing holds good of all created things, and is what seems to have been in the mind of the Apostle, when he said that "the whole creation groaneth and travaileth together in pain until now." Further, with a daring that has a touch of sublimity in it, Hartmann says: "To the religious consciousness the world's movement is a great tragedy, in which a single actor plays all the parts, hero and villain, figurant and chorus, yet, in such wise, that in each part he really feels and lives through the represented suffering. When the actor reaches his tragic end in each particular part, he closes at last the whole piece as a tragedy, and betakes himself, delivered from the suffering of acting, to rest."

Entirely in harmony with Hartmann's view of the transitoriness of the universe, is that which he holds of a life after death. Existence here being nothing but a struggle between conflicting forces, which render man miserable, its continued duration hereafter, so far from being desirable, is quite the reverse, and death, instead of being a calamity, is only a welcome deliverance. "So long as no theoretical proof of immortality exists, it is permissible to the grace-endowed man to see in natural death, which the natural man fears as the end of his individual being, the gracious providence of God, bringing well-earned slumber to one wearied with honest toil, and adding the real to the ideal deliverance from evil." Elsewhere, also, he condemns the doctrine of immortality as tending to distract attention from the duties of the present life and to make harder the task of sanctification. "A man afflicts himself more cheerfully in the belief that it is not for long, and exerts his strength more vigorously for a day's extraordinary march than for one of an unending series."

Consistently also with the doctrine of the unity of God and man, Hartmann excludes the current idea of divine providence as a government of the universe by God in the same manner that a kingdom is governed by a king. Miracles, of course, are impossible, since the laws of the universe are the fixed laws of God's own being. Rewards and punishments are not considered otherwise than as invariable consequences of human actions. Revelation is made to each individual directly, and not by the mouth or the pen of a third person. Prayer is an absurdity; since God will not and therefore cannot interfere with the normal order of events; and even thanksgiving is an impertinence, as implying that God might, if He chose, withhold possible blessings. In short, everything in religion that the most advanced scientific rationalist finds fault with is also rejected in Hartmann's system, and nothing is left but the striving of men toward perfection by self-examination and self-mortification.

The practical conclusion of the whole treatise is that the prevalent churchly forms of religious thought and religious action will gradually disappear, and nothing will remain but a pious withdrawal of the religious consciousness into itself, seeking communion with the God within. Prayer for blessings desired and thanksgiving for blessings received will alike be discarded. Religious music, painting, sculpture, and architecture will perform merely the function of gratifying the religious-æsthetic taste, and the only remnant of existing public worship will be the sermon, which will be employed as a means of instruction and of awakening and strengthening the religious sentiment. Even this, for some, will be unnecessary. "He who can dispense with incitement through preaching to the cultivation of interior worship, already possesses that which, under favorable circumstances, can be attained through preaching. To take part in external worship without reference to its proper end—the awakening of inner worship—as if it were in itself a work well pleasing to God, would be a backsliding into righteousness through works. There is only one genuine worship of God, that of real life as coöperating in practical salvation, and all worship has value as divine service, only as far as it is a means to fit men for the real divine service of practical life."

The tone of the book is tender and reverential; never aggressive nor denunciatory. Many passages, indeed, might be read by a person of any religious faith with pleasure, as expressing his own sentiments. A tinge of sadness pervades it, growing out of the author's conviction, which we have mentioned above, that the very condition of human existence is evil and suffering. The declaration that happiness, or even freedom from pain, is unattainable save at the price of life, perpetually recurs, like the refrain, "Brothers, we must die," of the Trappist monks. "If happiness were the purpose of human life, then, in spite of all the sensuous, emotional, and spiritual joys it offers, it would not be worth living and for the best situated it would be nothing but a monstrous cheat." Nor is he at all boastfully confident of the soundness of his own judgment. On his very last page he says of his prognostications: "Just so long as a fragment of a church exists and is indispensable, the practical proof is presented that the religious life outside of the Church is still insufficiently religious, so that religiousness in the world still needs a special sphere limited by its former life. While this incompleteness remains greater or less, so will the ideal of a churchless religiousness continue to remain an ideal which historical progress must and will gradually approach."

A Remarkable Novel.

A book which has more novelty of scene and incident, more crispness and vigor of characterization, and a firmer grasp on intense and elevated emotion, than a hundred of the languid variations on outworn themes which of late years have done duty for love stories in England and this country, is a novel bearing the quaint title of *Mr. Isaacs*, by F. Marion Crawford (MacMillan). The author of this striking tale exhibits a faculty of keen observation and an imaginative power which might have given new meaning and fresh interest even to the hackneyed themes treated by the majority of English novelists. How much more effective is the result when exceptional creative and pictorial capacity has been luckily directed to an unworked and singularly fruitful field. It is surprising, indeed, that the strange and suggestive contrasts produced by the contact of Western and Eastern civilizations in British India should not have proved irresistibly attractive to English writers of fiction, and that some novelist has not before this sought to do for the life and manners, what Edwin Arnold has done for the thought and aspiration, of the higher Asiatic races. But, although too long deferred, the work is likely to be done at last, for the rare success achieved by the author of the book before us cannot fail to call forth a throng of imitators and competitors. The portrayer of "Mr. Isaacs" may fairly be said to have enriched light literature by a new province; he has invented a new kind of fiction—the tale of life in India—as truly, at least, as Walter Scott invented the historical novel, or as Cooper invented the tale of frontier life and the sea story.

The scene of the novel is laid partly in Simla, the mountain village which in the season of excessive heat so insupportable in the plains, becomes the favorite place of sojourn for the affluent and distinguished part of Anglo-Indian society—partly in those foot-hills and valleys of the north western Himalayas, which are the chosen haunts of the tiger and other formidable examples of big game, whose slaughter reflects some credit on the sportsman, since it tests his daring as well as marksmanship. The hero, as we have said, is not a Moslem—and, after all, when we think of it, the name "Mr. Isaacs" should as naturally suggest adherence to the Moslem faith as Semitic lineage—but a Persian of the purest Aryan type, endowed with those admirable aptitudes of mind and body of which this branch of the Aryan family has not failed, even in its darkest epochs of social decline and political degradation, to exhibit some impressive illustrations. Indeed, as we mark the extraordinary physical and mental gifts, and the spiritual nobility ascribed to this man by the author—revealed, moreover, in such a spontaneous and lifelike way that the attributes, majestic as they are, do not strike us as exaggerated, fantastic, or spurious—we seem to divine that in the unexpressed thought of the writer the blood of Achæmenid or Sassanid princes has been transmitted beneath age-long and multiform mutations of the social framework, and by devious, unnoticed channels, to the veins of this fair-bodied, large-brained, high-souled being. The man is a Moslem, for, with the exception of an insignificant fraction, the whole Persian people has exchanged fire worship for Islam; but, save his creed and familiarity with the English language and the manners and tone of English society, there is nothing in his portrait incompatible with the most august reminiscences associated with his race. He might have been a satrap of the Great King, or expounded the lore of Zoroaster among the magi. He has the intellectual acquirements and proficiencies, the spiritual intuitions and yearnings of the most highly organized type of humanity; yet he keeps bold and clear, in the foreground of his character, those primitive and virile traits implanted by the old Persian training to ride, to draw the bow and speak the truth. Place now, as the author places, such an heroic, splendid, eye-captivating, and heart-haunting figure amid strange, romantic, and pulse-stirring scenes, such as in India may still be found, and beside him, a young Englishwoman, impressionable, generous, high-bred, handsome, charming—and what does it matter to him or to her, or to the reader, that the man has three wives already, and that, according to all canons of precedent and orthodox opinion, a union between these two would be utterly incongruous and monstrous. They do not trouble themselves about precedent and prejudice; they love' each other, these offshoots of Aryan tribes long parted and far sundered, and the young English girl apparently does no more dream of resisting the masterful attraction of her Persian lover, than according to the sacred narrative did the daughters of men when the sons of God saw that they were fair.

We have no intention of impairing by an outline of the plot and a minute review of the incidents and characters the zest with which our readers will enter on the enjoyment of a prize long and vainly desiderated by the novel-reading world, something veritably new in fiction. We would, however, specially direct attention to two or three features of the book which signally exemplify the author's artistic capabilities, viz., the description of the application of a marvellous drug by which severe bruises are healed, and extreme exhaustion is repaired in the course of a short sleep; the rescue of Shere Ali in a defile of the Himalayas; and the final scene in which, after Miss Westonhaugh's death, and the swift and total blighting of his earthly hopes, her Persian true lover goes forth forever from the busy walks of men to seek in the society of his friend and teacher, a Buddhist ascetic, the solitude and self-effacement through which, for the earth-weary and heart-tortured followers of Gautama, lies the path unto Nirvana.

M. W. H.

A WOMAN PREACHER—NOT MARRIED.

Miss Anna Oliver's Four Years in the Pulpit—Battling Against Heavy Odds.

Miss Anna Oliver has almost completed her fourth year in the pulpit of the Willoughby Avenue Methodist Church in Brooklyn, and having demonstrated that a young woman can be a successful pastor, she and her friends think it is about time the Methodist Bishops received her into the Church work. She says that she has no other ambition than to do pastoral work. Bred as a strict Episcopalian, she had overcome the scruples of her family after she became an evangelist. Not to disgrace them, as some of her relatives feared she might, she declined to use the family name of Snowden, to which she was entitled, and adopted instead the name she had become accustomed to under an aunt's tutelage, that of Anna Oliver. Hard work has told upon her. Opposition from Methodist preachers has rendered her life more than ordinarily serious, and she appears now to be a demure young woman of Quakerish tastes, who, though frail in body, is abundant in energy.

The church, which she purchased from the Williamsburgh Savings Bank for $14,000, was about to be turned into a livery stable or a beer garden when she got it. She held the title in her own name for some time, giving her bond for $13,000, but she subsequently conveyed the property to trustees. It was found that if the property was deeded in the customary way the conference might repudiate the Methodism that tolerated a young woman as pastor and appropriate the church. Miss Oliver began to run the church on strict business principles, making her own salary the last payment due, and requiring all bills to be settled monthly. Each month's proportion of interest on the mortgage has been uniformly deposited in the savings bank, so that at the end of six months the full amount is always on hand. She determined to make her enterprise unique in its economy. She figured out that $2,250 would meet all the expenses, her own salary included, and when the revenue fell short she gave to the church what was due her.

She set her face resolutely against church fairs, festivals, oyster suppers, necktie sociables, leap year entertainments, charades tableaux, cantatas, wax work shows, or any other projects that would turn the church into a play house, an eating saloon or a bazaar. She, however, favored lectures, concerts, spelling bees, historical examinations, debates, and a reading room, and manages to get a little revenue from letting the church rooms for a school, for she contends that if the intelligence of the community is promoted the cause of religion is advanced. She does not understand what is meant by the constant cry in so many churches, "For the benefit of the church."

When Miss Oliver completed the usual Methodist pastoral term of three years, last April, she resigned, saying that she was a Methodist and believed in itinerancy, but the trustees declined to present the subject to the church, and the official Board, which has seven female members, unanimously reëxtended a call to her. She had worked herself down in health, but she accepted on conditions which gave her some relief. She has had her study in the church, has had a room on Willoughby avenue, and has been a table boarder at another place. Now it is proposed to erect a cottage alongside the church for her home. She hit upon a way by which she could erect a house, if she had land owned by herself, and accordingly she made a proposition to the church that if its members would raise $1,000 at once she would accept it for salary due and to come, would pay it on the $13,000 mortgage, secure the release of the building lot alongside of the church, and put up a home for herself. This ingenious plan, which went to the solution of a question that had troubled many men in the church, was responded to at once, and Miss Oliver has filed plans for a cottage she is going to build in the spring.

"She's got a head like Jay Gould for business," said one of her friends yesterday. "She has clung to her tenets of economy, and the result is that last year the receipts of the church amounted to $4,709.09, being an increase of $1,219.52 over the year before. The interest on the debt has been reduced $120, and the $1,000 above referred to reduces the debt to $12,000. This sum Miss Oliver is extremely anxious to raise. Acting under the advice of others, a year ago she issued an appeal, offering to send her picture to all subscribers. The returns amounted to only $137, but she thinks this is due to the fact that the appeal did not get into the hands of a sufficient number of persons, as only a small number of the 8,000 printed were distributed. 'We still believe,' she says, 'that there is $13,000 for us in Brooklyn and New York, if we can only get the appeal to the people with some one to stand by and take the money.' Miss Oliver planned to send an inexpensive engraving to the subscribers, but one of her admirers had a steel engraving of her portrait made at his own expense, and a fine picture is the result."

One of the church members says that the difficulty most encountered is a feeling among men that women are after all only second-rate creatures, and he tells the story of a man who had become a backslider from Methodism, and was reconverted by Miss Oliver after some men had failed to revive his religion. He became a member of the church, and often spoke in meeting of the girl-pastor's wonderful work, but when the obstacles to success were cleared away, and the repairs to the church and the building were about finished, he expressed his delight, and rubbing his hands said: "Well, now our church is doing so well—fair membership, large audiences, good incomes, handsome buildings, and all that—I don't see why we can't have a man for a minister." He was silenced by the information that the place would probably have been a beer garden and he would most likely have been calling out "Ein bier" there if it had not been for the Rev. Miss Anna Oliver.

SIGHTS WITH A TELESCOPE.

Saturn a Baby World, though 700 Times as Large as the Earth—Jupiter Magnified Two Million Times—The Mysterious Companion of the Dog Star—The Great Nebula.

The great blue dome of the Halstead Observatory rising boldly above the lofty walls of gray stone, which lift it out of the dust and smoke of the little town, is the most striking edifice in Princeton. It gives an air of erudition to the place. The traveller seeing it confronting him as he alights at the railroad station feels at once that he is in a university town, where the gravity of learning lends unwonted weight and dignity to all things, even to the chanticleer who, somewhat haughtily, though gravely and decorously, eyes him from a neighboring fence without indulging in any unscholarly and unmannerly crowing. One can imagine the Spaniards looking with something like awe upon the returned ships of Columbus. A great observatory seems to produce a similar effect. The magical charm of discovery hovers around it—discovery not among continents and islands on the other side of the earth, but among suns and worlds soaring in the heavens, many of which are far grander and more glorious than our own.

The new telescope which has recently been mounted in the observatory at Princeton is, with the exception of the one in Washington, the largest in this country. Its object glass lacks but one inch of being two feet in diameter, and the cigar-shaped tube of steel is about thirty feet long. It ranks with the half dozen telescopic giants which within a few years have been placed in the hands of the astronomers of the world, but of whose astonishing achievements the public has heard but little. Sir William Herschel would have thrown away his big reflectors in disgust if he could have caught a glimpse of the heavens through one of these telescopes. People who are not familiar with the progress of astronomy have no notion of work that is being done in the great observatory overlooking the battle-ground of Princeton—work that is changing the whole outlook for the human mind; putting the earth, as it were, into communication with its neighbors in the heavens, as steam engines and the telegraph have linked together the four quarters of the globe. People generally have no conception of what modern astronomers have achieved. Take, for instance, their studies of the planet Mars. If it were told of some ancient people, it would be set down as an idle fable, yet it is a fact that our astronomers to-day have a more comprehensive knowledge of the geography of Mars than anybody in the time of Columbus had of the geography of the earth. They have made careful maps of the whole planet, filled with astonishing details, and if an astronomer were suddenly transported to Mars and set down at some given point upon its surface, he would not, by any means, feel that he was lost. Given his latitude and longitude, he would know that in a certain direction and at a distance of a certain number of miles lay the body of water named in his maps the Lake of the Sun, or Lockyer Sea, and that in another direction was the continent of Copernicus. He would know whether he was standing upon an island or the mainland, what the general shape of the land was, and which was the shortest route to the sea coast. If the inhabitants of Mars were not inclined to maritime enterprise and geographical explanation, he would be able to tell them more than they had ever known of the form and position of the lands and seas of their globe, and might, perhaps, earn a comfortable living in a strange world by opening a school for instruction in martial geography. These same astronomers have not only weighed the sun and discovered of what materials it is composed, but they have also analyzed the stars and shown that in many of them the same elements exist with which we are familiar on earth. They have proved that, so far from our sun being the only one, the universe is sprinkled with many millions of suns. They have found that worlds and suns go through a process of development, and by looking at the spectrum of a star they can tell whether it is probably older or younger than the sun. They have discovered suns, some larger than ours, which, grouped together in pairs and by threes and fours, are swinging around a common centre. They have found spots in the heavens that are fairly bedded and ablaze with suns. With their eyes one may look upon chaos itself, for they tell us that the so-called gaseous nebulæ are really portions of the universe which have not yet been organized into solar systems.

In view of these facts, an account of the wonderful scenes which are opened up in the celestial spaces by the great Princeton telescope, and which are seldom enjoyed by anybody except an astronomer, must possess interest for all readers. The Princeton telescope is particularly interesting, because it is in charge of one of the foremost of living astronomers, Prof. C. A. Young, who has made some of the most important additions to astronomical science which it has received in modern times. An amateur astronomer, who recently spent an evening in the Princeton observatory, tells this story of what he saw:

"We began with Saturn. I have often studied Saturn with a small telescope, and have never known a person to look at that planet for the first time, even with such an instrument, without a cry of surprise and admiration. But Saturn, as shown by the Princeton telescope, was a revelation to me. Think of a globe almost 700 times as large as the earth suspended in space in the middle of three or four concentric rings, which are nearly 40,000 miles broad and more than 400,000 miles in circuit, but less than 100 miles thick, and turned edgewise toward the planet's equator! This tremendous ringed world, together with the eight moons that revolve around it, appears to the naked eye only as a dull-looking star; but imagine it brought so near that its globe alone appears many times larger than the full moon, while all its surroundings are equally magnified, and you will have some notion of the power of the great telescope. The question naturally arises in the mind of the observer, 'Is it possible that this marvellous planet can be inhabited?' It is easy for the imagination to picture the appearance of those rings as seen from different points on Saturn, here shining as enormous arcs of light, and there hiding the sun and burying a large portion of the planet in their shadow. There is some curious evidence tending to show that the rings are falling, or rather being drawn down toward the planet, and that in three or four centuries they will touch it and eventually fall to pieces, as it were, thus robbing the heavens of one of the strangest phenomena that man has ever looked upon. If Saturn were inhabited, what a tremendous event the destruction of the rings would be for the inhabitants to look forward to! But it seems to me that the revelations of this monster telescope show plainly enough that Saturn is not yet inhabited. Everybody knows that modern astronomers generally regard Saturn, together with Jupiter and the other larger planets, as not yet being cooled down and permanently crusted over like the earth. Geologically they are many ages younger than the earth. They are yet in a fiery and perhaps partly vaporous condition. But the effect of the mere reading of such statements bears no sort of proportion to that produced by actually looking upon a world which has not yet cooled down. As I gazed at Saturn I saw how the earth probably looked ages before man was created, when it was 'without form and void,' and when 'darkness was upon the face of the deep.' It was a startling as well as an intensely interesting thing to be thus brought face to face with that awful genesis of a world, to be enabled to look upon those formative processes which are vaguely hinted at in the Bible history of the earth's beginning. Saturn's future oceans are suspended as mighty clouds in its atmosphere, tossing and heaving with a motion that is all but perceptible in the telescope. I was not fortunate enough to witness anything of the kind, but at times great telescopes have shown the distortions in the planet's outline produced by the heaving of the vast sea of vapor surrounding it. Its future continents, yet burning hot, or perhaps mere expanses of liquid fire, are hidden beneath a veil of steam and smoke. But when it is ready to receive and nourish living beings, what a magnificent world it will be! All the earth's fifteen hundred millions of inhabitants would hardly more than suffice to people one of its islands. 'How many millions of years,' I asked myself, 'will pass before a race resembling man begins to explore Saturn, to settle it and cultivate it, to build cities and fleets there? It would be a flight worthy of a new Dædalus to reach the rings.'

"'Look at Enceladus,' said Prof. Young.

"The remark was so pat with the line of thought I had been following that for a second I half expected to see the old Titan of that name, who made war on the gods when the earth was young, preparing to renew the fight in this new world of Saturn. But the astronomer was not talking of demi-gods, but of the little moon named Enceladus, which hovers close under the wing of the ringed planet, and is only visible with such giant telescopes as this. It is one of the eight moons that will adorn the sky for future lovers in Saturn to swear by.

"We next turned the great tube on Jupiter, a still more gigantic planet than Saturn, though less wonderful, because it has no rings. Here I saw another world in its fire age. But there are indications that Jupiter, geologically considered, is older than Saturn; that is to say, further advanced toward the condition in which the earth now is. This conclusion, I think, is warranted by the appearance of Jupiter's surface, which contains many more conspicuous markings and spots than are seen on Saturn, and some of these spots remain almost unchanged for years. An ordinary telescope generally shows only two dark belts running along on each side of the planet's equator, a few spots, and the bluish tinge of the surface around the poles. The Princeton telescope shows that the whole huge ball is covered, and, in the neighborhood of the equator, crowded with belts, spots, and streaks. Jupiter's atmosphere, like Saturn's, is filled with clouds which present a most picturesque appearance. I regretted very much that the famous red spot which appeared on Jupiter in the summer of 1878 has faded almost to invisibility within a few months. This giant telescope would, perhaps, have thrown some light upon the nature of the spot. But I saw enough to convince me that Jupiter has not yet developed into a habitable globe. With Saturn, Uranus, and Neptune, it forms a family of giant worlds which will in time bloom with life. That will be the age of great worlds, as this is the age of little worlds. Life will there, perhaps, assume forms of which we have never dreamed.

> "When the old hulk we tread shall be a wreck,
> A slag, a cinder, drifting through the sky,
> Without its crew of fools.

"Irrespective of the suggestions which it conveyed, Jupiter was a superb object, worth a long journey and the loss of a whole night's sleep to see. It hung before the eye, an enormous globe—not a flat disk, but round and full, and perceptibly bulged in the equatorial region through the effect of its rapid rotation. It was like taking a station off in space and watching the earth rotate, only Jupiter rotates much faster than the earth. In an hour you could plainly perceive how the great planet had rolled on its axis, spots that had been near the edge being advanced toward the centre, while new spots had come into sight along the edge of the ball. The shades, tints, and markings on the huge globe were indescribable. On each side of the equator was a great belt, the northernmost one being a pinkish red, while the southern belt was grayish. A delicate shade of pink was the prevailing color on both sides of the equator, and this beautiful background was diversified with light and dark spots and streaks. Rows of spots resembling the snowy white "thunderheads" that are often seen poking above the horizon as the advance guard of a summer storm flecked the surface in some places. A man must be destitute of all power of imagination not to see in some of these spots unmistakable clouds, and in the darker spots adjoining them the shadows which they cast. Beyond the irregular main belts which seemed to border the equatorial regions were other belts and spots without number running far up toward each pole, but around the poles the surface was shadowed with a tint recalling the lighter shades of a fine steel engraving. At times, when the air was particularly steady, all the delicate details of the planet's surface came out exquisitely defined. Once Prof. Young put on a magnifying power of 1,440 diameters, which means that the surface of the planet was magnified more than two million times! The atmosphere was not steady enough to give good definition with such a power, but the gigantic and startling appearance of the planet, distorted and blurred by the tremendous magnifying, as it seemed to the observer (by the unsteadiness of the air, in fact), and the flickering forms of the belts and spots showing dimly like huge shadows, made a sight that I shall never forget.

"Below the well-known Belt of Orion everybody who watches the brilliant skies of our winter nights must have noticed a hazy-looking star. It is the famous Great Nebula. Very little telescopic power is required to show it as a luminous cloud through which stars are shining. But it is difficult to convey to one who has not beheld it with his own eyes an idea of the magnificent appearance of this nebula when seen with such a telescope as that at Princeton. The whole field of view, with the higher powers, is filled with a shining green haze broken up into flocculent masses, delicate clouds of light, sprays and wisps. It is sprinkled with stars which glitter like diamonds in a bride's veil. It looks as though you could scatter it with a breath, but it fills a space, in comparison with which the solar system is a mere point. Many astronomers believe it consists of the stuff of which suns and worlds are made, and some think appearances can be detected in it which indicate that it is at this moment being moulded into suns. One of the triumphs achieved by the late Henry Draper was the photographing of this nebula, and his photographs may enable future astronomers to determine just what changes are taking place, and whether in this strange object we really do behold the slow development of a new domain of solar systems. There is a black gap at one point in the nebula, and in this gap shine the four stars constituting the well-known trapezium. There are two other stars near these which small telescopes do not show. This is the central point of interest in the nebula. It seems clear that those stars are not there by accident, but that there is a real connection between them and the nebula. They appear, as Prof. Young remarked, to be feeding upon the nebula.

"From the Great Nebula we turned to Sirius, or the Dog Star, the brightest of all the stars. It is easy to believe that the stars are suns when one looks at Sirius through a two-foot object glass. It dazzles the eye like ten thousand stars combined into one. Yet a man must have faith in mathematics to believe that Sirius is a sun at least a thousand times as great as our sun. If the earth were as near to Sirius as it is to the sun it would be burned to a cinder in a moment. But, to me, the most interesting thing about this great star was its mysterious companion, the discovery of whose existence is one of the triumphs of modern telescopes. There it shone with a dull, pale, ghostly light, almost hidden in the overpowering rays of the star. In bulk it almost equals Sirius himself, and they swing around one another like two giants who have grappled upon an icy footing. Prof. Young says the companion is rapidly approaching Sirius. But what is it? We can hardly call it a sun, for it has not the light of a sun. It may be the ember of a sun that is dying out. It may be one of those strange dark bodies with which space, it is believed, abounds, and which, having fallen within the attraction of Sirius, is dogging it through the sky. You know that the stars are all in motion—Sirius, as the spectroscope shows, is moving away from us at the rate of twenty miles a second—so that it is easy to conceive that the star may have came across its dusky companion in this way. The laws of gravitation will never let them part, though the distance between them may vary; and so the greatest sun of which we have any knowledge must go swinging through space with its skeleton comrade until it itself becomes cold and dark. The greatest interest for us in all this lies in the possibility that our own sun may at some time, as it journeys on, fall within the attraction of one of these dark cosmical bodies and so come to have a companion like Sirius. The disturbing force of a body, having a mass equal to, or greater than that of the sun, and brought into the neighborhood of the solar system, would produce changes in the motions of the planets which might render the earth uninhabitable.

"I cannot stop to tell of what else the great telescope shows in the star depths; how it reveals shining beds of stars in the Milky Way; how, when turned upon a nebulous speck, it sometimes shows the astonished observer a veritable ball of stars, an innumerable multitude collected into a globular cluster, and at other times reveals thousands of stars arranged in spraying lines, and spirals, and all odd shapes. When I visited the observatory the moon was not in a favorable phase for telescopic study, but I know what the big telescope would do with the moon. It would reveal the ragged mountains and craters, the tablelands, like those splendid ones surrounding the Bay of Rainbows, the peaks, and the old ocean beds with a distinctness that would make the startled observer fancy some supernatural power had suspended him directly above that old worn-out world preparatory to letting him drop down to perish in one of its airless and waterless wildernesses, or to be battered and crushed in the rocky bottom of one of its extinct craters. If I had such a telescope, I fear, though bound to this terrestrial dust-mote, I should spend my life in other, grander worlds."

FASHION NOTES.

Fur muffs are for demi-toilet.

Ottoman sateens come in large flat reps.

Corsage bouquets grow larger and larger.

Ball dresses are again trimmed with flowers.

Spring sateens are on the dry goods counters.

Robes of satteen appear among the new goods.

Pongees are seen on J. & C. Johnston's counters.

There is a return to demi-trains for dinner toilets.

Brocaded velveteen appears among spring novelties.

Checks and plaids will be the feature in spring silks.

The new muslins are soft finished, without any starch or size.

French crêpe, white and in colors, makes exquisite ball dresses.

The low English turban of seal is much worn by ladies in sleighing.

Very large silk painted or feather fans are only for ball and opera use.

Ashes of roses has made its appearance among the æsthetic colors.

Robe dresses with embroidered flounces appear among spring importations.

Birds and fruits form a part of the design of many of the dressiest satteens.

The transit of Venus design is one of the new patterns seen on Spring sateens.

New satteens appear in the fashionable and æsthetic colors, so popular at present.

Fur capes and collars are fastened with long ribbon strings tied in a full, flowing bow.

Large dots, circles, and moons bid fair to be as popular as ever in the new spring goods.

The draperies are much bunched around the hips, and even below that point by some dressmakers.

The feature in new polka-dotted cotton dress goods is the large size and close proximity of the dots.

Visiting and reception dresses grow more simple, dinner toilets more elaborate, as the season advances.

Sprays of flowers, beautifully imitated in precious stones, are taking as brooches the lead of all others.

Bodices of velvet, whether plain or brocaded, are elegant and fashionable for afternoon, dinner, and reception toilet.

Sleeves and the collars of dresses are trimmed with flat-lying collars and cuffs of lace put on over the dress collar and cuffs.

Checks, large polka dots, Greek keys, stripes, and shamrock leaves are among the designs of the new sateens and cambrics.

A pretty novelty in furs is the collar with lapels extending down the front, and a small muff attached to the same at the waist line.

Lord & Taylor's great bow window displays a magnificent array of brocaded silks, satins, and velvets in all the new evening colors.

The first spring goods that have been opened are fine Scotch and American tweeds, with large plaids in admirable mixture of colors.

The satin that forms the under dress of a tulle ball dress may be light weight. Glacé silk underskirts are also permissible under tulle draperies.

Sealskin hoods bordered with leopard, or Persian lambskin, or swans' down, are the favorite cover for the head for sleighing with young ladies.

From *Harper's Bazar* we learn that for sleighing ladies wear Russian hoods of sealskin, otter, or chinchilla, with deep capes extending over the shoulders.

A dinner dress, whether simple and inexpensive, or excessively costly and elegant, should never be made in a style that would render it mistakable for a ball toilet.

For tying down the turban, hat, or bonnet when sleighing, scarfs of Spanish lace, clouds of zephyr, and ice wools, white or in gay colors, are used when the Russian hood is not worn.

SNAKES THAT SWALLOW BULLS.

Tales of Big Serpents and of Tiny Ants that Rout the Biggest Reptiles.

"I took that fellow with a lasso," said a naturalist who recently returned from a collecting tour in South America, pointing to a magnificent snake skin more than twenty-two feet in length that hung from the wall of his study, "and in this wise," he continued, observing the look of incredulity upon his visitor's face. "I was way up the Amazon, and being anxious to get a large snake I offered a reward for one, and soon heard of a big fellow that had been seen about three miles from where I was. I immediately moved into the neighborhood, and after we had scoured the country several days the boy I had with me came running through the bush in great excitement, saying that a big boa and the saubas (ants) were having a fight. The saubas, by the way, are foraging ants that put to flight man and beast. When they enter a house the owner steps out and runs for his life, and when I came up to the snake I found it in a similar fix. It was a magnificent specimen. It had swallowed some exceedingly large animal, and, while almost unable to move, had been attacked by the ants. The grass, bushes, twigs, and leaves were black with the insects, and every moment or two the great reptile would lift itself in the air and sway about savagely, but only to fall back again. I saw that the ants would destroy it in an hour, so I sent my boy back to the village to get a rope, and took to the trees myself.

"In half an hour he returned with twenty men. I made a lasso, and, getting near the snake, succeeded in throwing it over his head, but I became fairly covered with ants, so that I had to rush away and roll in the bush to rid myself of them. However, we all rallied, manned the rope, and managed to drag the snake out of his retreat and away from the ants. It was so sluggish under this rough treatment that I was able to place my pistol within six inches of its head when I shot it. I soon had it in camp and the skin taken off. I wanted the skeleton also, but the natives stole it in the night, and my specimen went for stews the next day. Boa meat is not bad, and is very generally eaten in many localities.

"It is a great mistake to think that snakes are useless. They are, in the first place, extremely valuable as scavengers. The meat of the larger kinds is eaten. The skins are invaluable as leather, and even here are considered fashionable when made into bags and pocket-book covers. Then the oil of rattlesnakes and nearly all other serpents is valuable. Crotalin comes from the rattlesnake and copperhead. This skin on the wall is by no means one of the largest. Very few people can be made to believe that snakes attain the sizes mentioned by naturalists. Nevertheless, gigantic snakes do exist. In Borneo, Mr. St. John measured snakes twenty-six feet in length. Mr. Bates, the naturalist, measured in South America many water boas that were twenty feet long, but the largest snake ever reported to have been seen by a European of unquestioned veracity was that vouched for by the well-known botanist, Dr. Gardner. The monster had swallowed a horse, and had soon afterward been drowned by being swept down a river by an overflow, and when found after the settling of the water, it was hanging in a tree. It presented a most remarkable spectacle, being 40 feet long and distended to an enormous bulk. These serpents are often called *Temacuilcahuilia*, meaning 'fighting with five men.' A skin of one formerly in the British Museum is 35 feet long.

"Andanson observed a snake in Senegal that was fifty feet in length and two and a half in diameter, while Waterton tells us that a Spaniard showed him a skin at Angostura, the capital of the Orinoco, that from its thickness he judged to have been that of a serpent seventy feet long. Baldaens, the author, found serpents in Ceylon thirty-six feet in length, and in Java he saw one that had swallowed a stag entire. Owen, in his 'Natural History of Serpents,' gives the length of one as fifty feet, and Father Gumilla, in his 'History of Orinoko,' refers to serpents forty feet long; so that it would seem fair to suppose that snakes do attain what might be called gigantic dimensions. On the Rio Branco the traders and natives report that snakes swallow full-sized cattle, and this can be readily conceived. The horns, of course, are not swallowed. The snakes lie in a lethargic condition until they drop off.

"A case came to my hearing," continued the naturalist, "of a curious accident occasioned by a snake that had swallowed a deer. A native pinching the body and thinking the reptile dead, attempted to cut it, when the monster writhed and hurled its head at the man with so much force that the projecting horns penetrated his lungs and killed him. Mr. McLeod, who was the historian of the 'Voyage of the Alceste,' was captured and kept a prisoner for many months at Whidah, on the coast of Africa, and he states that he observed snakes nearly sixty feet in length. Tales of fabulous snakes are common in history. Valerius Maximus, quoting Livy, refers to the alarm into which the Roman army was thrown by an enormous serpent that had its lair on the banks of the Bagradus, near Utica. This snake, according to Pliny, was 150 feet long. Bontius refers to snakes in the Asiatic islands that exceed thirty-six feet in length, and mentions that he has seen persons eating the flesh of large hogs captured by and taken from snakes.

"Here is a rattlesnake," continued the snake historian, pointing to a large, finely-mounted skeleton, "that tested the nerve of a friend of mine. He is an officer in the artillery, and before the war was stationed in Florida. One day while sitting on a root of a tree with his elbows on his knees a snake crawled out between his feet. He remained perfectly quiet until it was several feet beyond him, and then he shot it with his revolver. No, he wasn't charmed, but to use his own words he was 'half scared to death,' and if he had jumped and been bitten it would have been fatal, as there wasn't a drop of liquor within 100 miles of the camp, and that is probably the only known cure. Wallace, the naturalist, once left his house in a town in Malay for a few days, and on returning found it occupied by a python over eighteen feet long. Its tail was seen hanging down from the rafters, and one of the natives, seizing it, rushed out of the door, dragging the monster that vainly attempted to regain its hold. While being whirled around and around the reptile was finally stunned by being dashed against a tree. A Malay boat anchored one night along the shore of one of the Celebes, and a man was sent ashore in search of the betel nut. Soon afterward the crew were aroused by his screams, and in following them up found him in the folds of a gigantic python. It was killed, and they found that the arms of the man alone bore signs of teeth marks, his ribs and other bones being crushed in splinters by the constrictive folds. The cobra of India is the most dreaded of all snakes, and many thousands of natives are killed by them yearly. Wallace says that at one place in Malay they were so numerous that, on an average, a native was killed every day in the year.

"The great camondi snakes of South America have a habit of hanging from trees over the water with portions of their bodies concealed, so that they would easily be taken for the great vines that grow so luxuriantly in these forests, and in this way they obtain much of their prey that comes unsuspiciously along, even human game not being neglected. Kingsley relates an occurrence when four young women were bathing in a lagoon and one of them felt herself pulled from behind. At first she thought it a prank of one of her companions, but the form of an enormous snake soon appeared. It had fastened its teeth to her bathing dress, but the others succeeded in frightening it off. When they are gorged with food they coil up closely and resemble a stump, and a case is known of a native having made the mistake of sitting down upon one with results astonishing to both seat and sitter. Waterton, in referring to the camondi snakes, says that specimens from 30 to 40 feet long have been killed, and that the Spaniards of Brazil positively affirm that in the unfrequented districts these serpents sometimes attain a length of 70 feet, and will destroy the largest and strongest bull. They call them *matatoros*, which means literally 'bull killers.'"

MAKING GAS FROM NAPHTHA.

A Light which is Brighter, Whiter, and Steadier than Astoria Coal Gas.

Some of the gas consumers of Astoria have adopted a gas made from naphtha by a process patented by Magnus Gross. The gas is now supplied to the public by the Excelsior Gaslight Company. It is made by admitting a steady flow of naphtha into six retorts kept at a heat of 1,700° to 1,800° Fahrenheit. The naphtha flows in at the top of each retort, while at right angles to and beneath it a stream of superheated steam at 1,000° to 1,100° is admitted. This drives vaporized naphtha to the other end of the retort, whence it is passed in tubes through cold water. This frees it of moisture, and it then goes through a meter into the receiver.

Twenty thousand feet of naphtha gas are now, it is said, burned daily in Astoria at a cost of $1.50 per 1,000 feet to large consumers and $1.75 to those who use but one or two lights. The Excelsior Company say that they can afford to supply it in large quantities at $1 per 1,000 cubic feet, and they have entered into a contract to light a portion of Philadelphia at that rate.

The photometer in the works indicated yesterday between 23 and 24 candle power, and Mr. Gross said that he could without extra expense produce 30 candle power gas. At the Astoria Assembly Rooms, to which the new gas has been supplied, but where they still have a coal gas meter, a comparison was made of the two kinds of light. The naphtha gas was brighter, whiter, and steadier. A piece of white paper held over the flame showed no indication of smoke. A large jet was lighted in the open air, but no smoke was discernible, although a breeze was blowing. The pipe conveying the naphtha gas from the retort house to the receiver is entirely above ground, and at present lies upon ice; yet so free is the gas from moisture that there appears to be no condensation or freezing, such as would take place with coal gas under similar conditions. It is asserted that four men can make 250,000 cubic feet of the naphtha gas in 24 hours, while it would require sixteen men to make the same quantity of coal gas in the same time with the same number of retorts of similar capacity.