

of any Anglo-Saxon community on either side of the Atlantic I have ever come across. The general is certainly no exception to this rule, and as a fair specimen of his class, has a strong reverence for religion and respect for the Episcopal Church of which he, like his fathers before him, is a member. The parson who officiates in the building whose wooden spire we could see peeping above the general's woods were it daylight, has ex-officio eaten his Sunday dinners at Oak Ridge ever since the Montagues revived Episcopacy in the county after the lapse caused by its identification with torjism during and after the revolutionary war.

The general still reads the lessons on Sundays, and when some unusually ancient and "good old tune" is sung, his deep voice may be heard booming lustily above the piercing notes of the rustic choir. Here upon the veranda, with his legs crossed and his chair tilted back against the wall, he will talk to you of the glorious days of old, of the hundred negroes of all ages and sizes that every Christmas assembled beneath his roof, and when barn and cabin echoed to the thud of their stamping feet and to the banjo's twang, when a gentleman was a gentleman, and people knew how to "place" one another. Of how most of his old friends who sat upon the bench of the county court with him in the old days when magistrates were gentlemen of influence and property, are dead, or gone to the great cities, and the country homes with which their names have been associated passed into other hands. "I know it's foolish," says he, "but somehow I hate to see the old Virginia ways and fashions passing away. The war was necessary; we were a parcel of fools together, and got well whipped for our pains, though we gave the Yankees some trouble to do it, and I own everything turned out for the best; but I tell you, gentlemen, I wish the old arrangement had lasted my time any how. There were no happier people on earth than we were. Take this county"—and as the gentleman says this, he drops the front legs of his chair and his feet simultaneously on to the porch floor, and waves his hand out to where the moonlight is streaming over the lawn and the woods behind, and the stubble-fields and the pastures and the winding stream in valley beneath—"there are perhaps a dozen such places as this, owned by people of our class. We were all brought up more or less together. We fought and scuffled at the local school when we were youngsters, and followed one another as young men to the University of Virginia, fox-hunted and shot together, danced, raced, and intermarried, till we had lost all count of our relationships. We rarely travelled abroad, because we couldn't leave our large households of slaves and the responsibilities entailed by them for so long; and to tell you the truth, we were not very flush of money as a rule. To say that we were generally in debt, though true, would leave a false impression. Our plantations, dear to us though they were, were of nothing like the value of our slave property, whose increase we preferred, to borrow money upon rather than to sell, from motives of pride and kinliness toward our dependents; but we were heavily overstocked, and often lived for years on paper.

"I know we were provincial and egotistic. We thought ourselves bigger men than we really were, but our political control at Washington did much in saving us from the mental stagnation that our bare literary record might imply.

"Whatever else we were, we were always farmers and country gentlemen; but, in addition, were often judges, senators, bankers, physicians; that the Yankees, when the war broke out, thought we were enervated by luxury, is a proof of how little the two sections knew of one another in those days (and I sometimes think they don't know much more now). There never was luxury in your sense of the word in Virginia. Such as you see my home to-day it has always been, and the meal my wife gave you to-night you would have got in 1860—for thank God and a good plantation and a taste for farming, I have never since the year after the war had to want for the ordinary comforts of life. I pay more attention to grass and improved cattle than of old. I have seeded much of my alluvial low ground to timothy, and cut all the hay I require every year from it, and the rest produces as heavy crops of Indian corn per acre as the Ohio valley, and has done so from time immemorial. Upon the poorer uplands I range my cattle, and grow what wheat and oats my own people and horses require. I have set out a vineyard which is fast coming into bearing, and have planted several hundred peach and apple trees, for the benefit, if not of myself, at any rate of those that come after me. Negro tenants cultivate the odd corners of the property in tobacco and corn on shares with me, and upon the whole I have no great cause to complain.

"Twenty years ago, however, it is not at all likely you would have been sitting in the porch alone with me as you now are. The chances are, there would have been half a dozen here, and double the number of young folk frolicking in the parlor. We sometimes scare up a right smart crowd, even now, when the city people are out here in the summer; but, bless me, I've seen the men lying so thick on the floors, tucked up for the night, you could hardly get about the house without treading on them.

"Then, in those days, as I before said, you knew who was who. Now if your daughter goes out to a dance in the neighborhood, the chances are she is escorted home by young Smith whose father kept the store at the forks of the road yonder when I was a boy, or young Jones who measures calico in a dry goods store in town. Perhaps that's all right; mind you, I don't want

to say anything against it. We are a free country now, and a republic (worse luck to it), but I sometimes feel like the old Lord Fairfax, who, on hearing in the backwoods of Augusta county, of Cornwallis' surrender at Yorktown, told his servant to 'carry him up stairs to die, as there was no use in his living any longer.'

"Then there was a large class of good, honest yeoman farmers living among us, also slave holders, that were welcome to a seat at our table, or a bed for that matter, if they came along, and with whom we were on a familiar and friendly footing, but still they were not of us. Their families and ours did not even pretend to associate. The annual call they made perhaps as neighbors was a mere relic of very old colonial days when families were more dependent on one another, and a sort of feeble protest against class distinctions—a mere show of equality that hurt nobody and amounted to nothing, and that the very negroes laughed at. But if we held our heads above the large yeomen who very often had considerable property, and nearly as many negroes, sometimes more than we had, they in their turn looked down on the smaller farmers, who again revenged themselves by their contempt for the overseers and the poor whites. In fact," says the general, laughing, "we were a powerfully aristocratic people, I promise you, and you will find the fires still smouldering through the country now, and working with the new elements if you live here long enough to get below the surface."

"Mar'se George. Oh, Mar'se George." The voice is Caleb's from out the darkness; he has stolen round the house and his white teeth are flashing on us from the foot of the veranda steps.

"Hullo, Caleb, what's up?"

"Mar'se George, sah, dar's suthin' the matter wid dat ar sorrel mar agin, 'pears like she's powerful uneasy a snortin', an' a gwine on; I thote I'd jes git you to step round an' look at her."

While the general, who, like all Southerners, can not only break, buy and ride a horse, whether he be farmer, merchant or lawyer, but doctor one, too, in a rough-and-ready fashion, gets his stable lantern and hurries across the lawn toward the lodging of the "sorrel mar," we revel silently in the balmy night. The ceaseless trill of frogs and tree crickets seems to grow louder now; all sounds of human voices have ceased; great-winged beetles and cockchafers go swinging through the trellis work of cypress and trumpet flowers, and fall with a thud upon the veranda floor; bats flit backward and forward before the lighted windows; the night owl hoots gloomily from the orchard, and the whippoorwill fills the valley below with his plaintive song; fire-flies dance against the dark background of shrubbery, while the great oak trees above us gently rustle their leaves on which the moonlight is streaming from a sky cloudless and twinkling with a myriad of stars.

CELESTIAL PHOTOGRAPHY.

Within a few years, celestial photography has made such rapid advances that it bids fair shortly to be, not only as a means of record, but also as a means of discovery, one of the prominent astronomical instruments of the immediate future. The science may be said to have originated in 1845, when Fizeau and Foucault took a daguerreotype image of the sun. In the hands of Draper and Rutherford in America, Janssen in France, and La Rue in England, it has achieved wonderful success, while hosts of observatories are using it in various ways, mostly as a means of recording sun-spots and faculae.

The camera is an artificial eye. There is the same lens in front,—the same sensitive plate or membrane on which the image falls. It possesses some advantages and some disadvantages over its prototype. As its use will not disable our natural eyes, the disadvantages may be left out of account. The advantages represent so much power gained to be used in wrestling from nature its secrets. They may be considered under four heads:

1. The photographic eye can take a quicker look than the natural one. We do not receive a full impression of any object until we have looked at it for about one-tenth of a second. During this time, the image gets stronger and stronger; but short of this we cannot see to advantage. Now in certain objects, notably the sun, the changes occupy a much less time than this; hence with all the magnifying power of a telescope we can never hope to see distinctly the forms of the elements which make up the photosphere. In times of calm, these elements may be granular and spherical; but when their fluid masses, floating in a more fluid medium, are acted on by any of the countless currents, and storms that sweep over the solar surface they readily assume such shapes and changes as the exterior forces impress upon them. At Mendon, in France, a photograph of a portion of the solar surface has been obtained with an exposure of only one hundred-thousandth of a second. This gives the shapes and location of the granules in a way they have never before been seen. The photograph also shows the relative high-giving powers of the different parts. When chasing each other around on the sun, the slowly-acting eye can only catch their blended effects, and the surface appears tolerably uniform in brightness. But this instantaneous picture brings clearly out the fact that the surface is really very mottled, and that on the number and brilliancy of these little granules, varying from time to time, depends largely the relative brilliancy of the sun. By taking with

the aid of a revolving disk a succession of views of the same portion of the solar surface, we also gain an idea of the character and violence of the movements to which the photosphere is subjected.

2. Another advantage of the photographic eye is that it can take a very long look. After one-tenth of a second, the impression on our retina becomes no stronger. As the new rays impinge, making new images, the images formed by the former rays fade away. Indeed, the tiring of the eyes is such that they see less well after continued looking at a faint object. Could this one-tenth of a second be lengthened out to a second, we could see ten times as brightly, the glare of the sun would be insupportable, night would be as bright as day, and hosts of faint objects would be brought into view. So it is with the sensitive plate in the camera. An impression formed lasts forever; a new one on top merely strengthens it; and if practical difficulties did not stand in the way there would seem to be no limit to the length of exposure and consequent piling up of the impressions. As it is, the nebula of Orion and all the features of the tail of our latest bright comet have been brought out by exposures lasting between two and three hours. Professor Holden has recently collected together the various drawings of this nebula made in the last three hundred years, and while a certain similarity runs through some of them many are so widely different that no one would think of them as of the same object. To some extent, the same divergences may exist in the photographs. The sensitiveness of the plate, the time of exposure and the clearness of the atmosphere will cause different appearances under varying conditions. But one distracting factor which cannot be allowed for—imperfection in the hand, brain and eye which no two people possess alike,—is left out of the problem.

3. Another gain we make by the use of the photographic plate is that we are able to photograph objects which the human eye is not constructed to see. If a ray from the sun is passed through a prism, it is stretched out into a spectrum, the different parts of which differ in the rapidity of their vibrations. The eye can take in vibrations of certain rapidity, and not others; it cannot see more than one-quarter of the whole. There are a number of rays beyond the violet of the visible spectrum, and a very large number outside the red, which it never recognizes. The ultra-violet rays are noted for their power of affecting salts of silver and impressing themselves on a sensitive plate. The infrared rays are principally rays of obscure heat; but they also in some degree can act on a photographic plate and make images of the objects from which they come. Captain Abney, in England, has succeeded in taking a photograph of a tea-kettle of hot water in a room perfectly dark, by means of the obscure heat rays which radiated from it. When we read this, it does not seem impossible that some day, not only the suns of space, but also their dark worlds, will throw their images on our silver films and thus render themselves visible. To supplement the eye, photography then has an especial value, and if we can find some substance still more or differently sensitive than silver salts—which is not improbable,—there does not seem to be any object which throws out rays of any kind which is beyond the reach of our cameras. All our senses are very imperfect. They are constructed so as to be limited in their powers. When the vibrations are of certain quality, they impress the ear and sounds are heard; when they change a little, all is silence. The trouble is in the ear that is not attuned to the new wave-lengths. So with the eye; given a certain rate of motion of the rays which proceed from objects, and all the variety of the external world is in the limits of our gaze. Change the rate, and utter darkness follows, notwithstanding the fact that emanations are still entering the pupil; the retina does not respond and no image goes to the brain. The camera gives us, as it were, a new sense. Its retina does respond to these invisible rays. The image is stamped upon it, and it becomes a source of visible rays, and we see the likeness of the dark object, even though we do not see the object itself. It must not be supposed that much has actually been done in the way of photographing dark objects; it is only one of the achievements of the future which seems to be within grasp.

4. But the main use of photography which will suggest itself to everyone is to obtain from the heavenly bodies and their phenomena images that will be lasting. Observers have had to preserve in their memory the appearances and make a description or drawing. Memory is deceptive, and the hand unskilful. But these permanent records can be examined and studied at leisure. There is a certain kind of accuracy about them which cannot be impeached, and comparisons of the different pictures of the same object or group can after the lapse of many years or centuries be readily made. We must remember the vast distances that separate the stars from us and from each other, and that they are all in rapid motion and most of them changing their relative positions. It is at least seven thousand times as far to the nearest star as the extremest planet is from the sun. It is more than two hundred thousand times as far as is the great expanse between the earth and the sun. There is no reason to suppose that nebulae are any less distant. Any motions that take place among them will not be detected in a few years. Micrometers and transit circles will do something to locate the larger stars with a sufficient degree of precision to compare, perhaps, with other positions obtained after the

lapse of a thousand years. But the great mass of small stars—the thousands that are thrown together in clusters,—cannot be thus located without immense labor. But they can, when photography becomes perfect enough, so impress themselves on a plate that a perfect map of them is obtained for the use of all future ages. The nebulae—cloudlike forms which may be drifting about in all possible configurations,—will give us their outline and structure when their light left them, some years before it reached us; and if the astronomers of the next century will compare our work with theirs they may have a fund from which is denied us.

Though the method is in its infancy as a means of research, there is already something doing. Daily through many telescopes the shapes on the solar surface are impressing their images within our reach. The one thousand plates of the late transit of Venus are probably the most valuable outcome of all the expeditions. Harvard Observatory has begun a grand sweep of the heavens, to embrace all the larger stars; Dr. Gould, in South America, has good negatives of some forty or fifty of the most noted clusters to be seen in the Southern sky, and he thinks he can photograph through a telescope stars that the same telescope will not reveal to the eye directly; Mr. Jansen has gone to the South Pacific, to observe the solar eclipse, and expects to photograph the whole neighborhood of the sun, to make sure of catching the disputed intra-mercurial planet, should there be such a thing of any considerable size; and, not least wonderful, Dr. Higgins is in full glare of sun-light caught the image of the faint solar corona on his silver plate. Draper, Jansen and Common have photographed the nebula of Orion, and what is still more striking its spectrum, and a number of cameras have been turned successfully on the bright comets of recent times. This record in the dawn of the science promises much for the future.

ISAAC SHARPLESS.

LITERARY FAME.

Thackeray complained that he chose to amuse himself with making pictures (for he fancied himself a great artist), but that people kept him busy writing stories when he would sooner be drawing or painting. Bayard Taylor never reconciled himself to the vocation of a prose writer. He believed that the world should have demanded nothing of him but poetry. Concerning this he used to tell a good story at his own expense. During his last lecturing trip through the Western States he was the guest, in a small city, of the chairman of the lecture committee, a self-satisfied and prosperous citizen, who met Taylor at the train, and carried him home to his own smartly furnished house. While waiting for the evening repast the well-fed chairman said, with manifest pride, that probably Mr. Taylor did not remember him. No, Mr. Taylor did not.

"Why," said the chairman, "you were here in this town ten years ago this very winter, this very month, and stopped with me, as you are stopping now."

Mr. Taylor professed his interest in the important fact. The chairman, glancing around on the chromos, the new carpets, and the glittering white walls of his home, said, "Yes, you see I have been prospering since then. Yes, the world has been a pretty good place for me. It has for you too, Mr. Taylor. I have watched your course ever since I got acquainted with you, ten years ago, and I suppose I am one of the few people who have read everything you ever wrote."

"What," said Taylor, everything?"

"Yes, sir, everything I could lay my hands on."

"Then," said Taylor, "perhaps you will tell me what you think of my new poem, 'Lars'?"

"Gosh!" said the man, "do you write poetry?"

THE Handel Festival has this year been a success beyond any previous occasion. The attendance has averaged 20,000 a day, and as seen from the lofty Press galleries the audience itself was a spectacle worth the journey down to Sydenham. It is twenty-six years since the first Handel Festival was held, a kind of rehearsal preparatory to the festival given in 1859 on the centenary of the death of the great composer. Then, as now, the first day was devoted to the *Messiah* and the last to *Israel in Egypt*, with the middle day appropriated to selections. £33,000 was taken on the three days, the expenses being £18,000, leaving a pretty profit. Both choir and band have been much augmented since then, and the numbers of the audience are well maintained, though on one of the days of the centennial 26,000 people paid for admission. The Crystal Palace itself never looked better than on these occasions, its spacious acre filled with music and well-dressed women.

HUMBUGGED AGAIN.

I saw so much said about the merits of Hop Bitters, and my wife who was always doctoring, and never well, teased me so urgently to get her some, I concluded to be humbugged again; and I am glad I did, for in less than two months' use of the Bitters, my wife was cured, and she has remained so for eighteen months since. I like such humbugging.—H. T., St. Paul.—*Pioneer Press.*