

THE COLORS OF THE STARS.

The constellated regions of the heavens, says the astronomer Niesten, in *Ciel et Terre*, offer an exceedingly vast field for the investigation of all those who desire to see progress made in astronomical science; and the most varied and interesting questions crowd themselves upon observers for examination. Among these the study of the coloration of the stars holds one of the most important places, not only for the attraction that it offers because of its novelty, but for the facility with which it may be pursued, and for the importance, especially, of the scientific questions connected with it.

If, on a fine evening, we raise our eyes toward the starry vault, we are immediately struck with the diversity of size, or rather with the brilliancy, which the stars exhibit. If we bestow a little attention on the subject we shall be readily convinced that these worlds or unknown suns, which are commonly said to shine with a whitish light, emit rays of the most varied colors. If the observer compares with each other the most brilliant stars—those of the first magnitude—*Procyon* and *Altair* will appear to him of a dazzling white; *Sirius*, *Vega*, *Castor*, and *Regulus*, of a white slightly tinged with blue; *Aldebaran*, *Betelgeuse*, and *Arcturus* will be orange; *Pollux* and *Alpha* of Cetus will appear yellow; and *Antares* and *Alpha* of Hercules will be orange red. Among the stars of the second magnitude *Epsilon*, *Zeta*, and *Eta* of Ursa Major will appear white, while *Alpha* will be distinguished by its yellowish color. In Ursa Minor, *Alpha* or the Polar Star will be seen to be yellow, and *Beta* yet more so. *Castor* will be found to emit greenish-white rays, while those of *Eta* are of a pronounced blue. Finally, if the observer makes use of a telescope, there will be seen thousands of stars exhibiting to him the same diversity of color.

According to Sir John Herschel, there is, near *Kappa* of the Southern Cross, a remarkable group formed of one hundred and ten stars, the principal ones of which, scarcely of the eighth magnitude, exhibit the greatest diversity of colors: one is of a bluish-white, two are red, two are green, and the three others are of a pale blue. It is an extremely brilliant and beautiful object, says Sir John, and the stars which compose it, when viewed through a telescope of sufficient power to distinguish their colors, have the aspect of most exquisite jewels.

These different colorings are not limited to certain particular stars, but we may observe in certain constellations nearly all the stars having the same tint. *Libra* and *Eriadnus* contain a large number of stars which are yellow. The principal stars of the beautiful constellation of *Orion* exhibit a color of a decided green, while the majority of the smaller ones are of a blood-red. *Dunlop*, in his catalogue of southern stars, refers to an extensive group, all of whose stars are blue.

By using a sufficiently powerful telescope, the observer will be enabled to separate certain stars which to the naked eye appear single, and he will then be struck with the richness of the coloring, and especially with the notable difference of color which in most cases exists between them. Some, and indeed the majority of them, will show him the principal star colored either yellow or white, while its companion is one of the shades of white, yellow, or red, or else is tinged with purple, as in *Eta* of Cassiope, or with sapphire-blue, as in *Beta* of Cygnus. In others the two components are orange, or else one is orange and the other blue, as in *Theta* of Centaurus, or green, as in *Epsilon* of Bootes and *Gamma* of Andromeda.

In some stellar systems we find white contrasted either with purple, as in *Delta* of Orion; or with green, as in *Zeta* of Corona Borealis; or with blue, as in *Pi* of Andromeda, *Lambda* of Ophiucus, *Psi* of Cygnus, and *Delta* of Bootes; or with yellow, as in *Gamma* of Delphinus; or with red, as in Twelve of Coma Berenices. In other systems of double stars a white color is met with in both components, as in *Alpha* of Gemini and *Gamma* of Virgo. Red is associated with blue in *Antares*, *Eta* of Perseus, *Omicron* of Draco, etc., and garnet with blue in *Omega* of Auriga, and with green in *Alpha* of Hercules. Finally, Fifty-three of Ophiucus, *Mu* of Draco, *Delta* of Ophiucus, and Fifty-five of Coma Berenices, are formed of two bluish stars, while *Alpha* of Pisces and *Sigma* of Cassiope each consists of one blue and one green star.

Upon the whole, in the light of the stars—those distant suns which probably illumine other worlds that are as yet unknown to us—the observer will possibly meet with all possible combinations of the principal colors along with their extended scale of tints. He will then ask himself whether these colorings are indeed real; whether all these tints, so harmonious in juxtaposition, are not the effect of contrast; and whether all these sparkling fires of ruby, topaz, and sapphire are not perhaps optical illusions merely. Having assured himself on this point, he will endeavor to learn whether these stars do not exhibit in their coloration a short period of variation or a secular one, as has been ascertained already with regard to the intensity of their light. The effect being known, he will strive to learn the cause, and perhaps will succeed in finding, in these differences in the intensity of luster and coloring, some indices that shall aid him in extending the knowledge which we possess in regard to the stellar world.

Remarkable Nugget of Platinum.

Mr. P. Collier states, in the *American Journal of Science and Arts*, that he has in his possession a nugget of platinum said to have been found near the village of Plattsburg, N. Y., and the weight of which is 104.4 grammes (about 3½ ounces). Its composition by weight is 46 per cent native platinum and 54 per cent chromite. The occurrence of the platinum metals in the St. Lawrence valley has long been known, and the presence of extensive deposits of chromite and its mineral associate, serpentine, in the same general locality is well established; but so far as known the nugget under consideration appears to be remarkable not only for its size, but also as an indication of the probable presence of this metal in a locality hitherto unsuspected. On visiting the locality where this and several other specimens were found, Mr. Collier found it to be a drift deposit of considerable extent.

RICHLY DECORATED VASE.

The accompanying engraving represents a porcelain vase of French manufacture highly ornamented. The central



FRENCH PORCELAIN VASE IN ALTO-RELIEVO.

object is composed of game and a huntsman's paraphernalia in high relief.

The vase, in addition to the richness of its decoration, which unfortunately cannot be shown here in its many colors, is, as the reader will observe, symmetrical in form and artistic in design.

Constipation.

Dr. S. H. Price (*Medical Brief*, March, 1881) says the following combination has never failed to relieve constipation, in his experience, when the person is otherwise healthy: R. Ext. cascara sagrada, fl., f. ʒj.; tr. nuc. vom., f. ʒij.; ext. belladon., fl., f. ʒss.; glycerine, f. ʒj. M. Sig.—Teaspoonful night and morning, as necessary. He has used this in all ages, from the three weeks' infant to the octogenarian, changing dose to suit age.

A New Liquid Hydrocarbon.

The announcements multiply respecting the extraordinary properties of the inflammable hydrocarbon liquid introduced by M. Friedel. The *Journal de l'Éclairage au Gaz* states that at a recent meeting of the Société d'Encouragement des Arts, etc., some remarkable experiments were made with this liquid, which boils at about 100° Fah., and is said to burn with a brilliant white flame of a comparatively feeble temperature. On the occasion in question, a large can containing a supply of the liquid was set on fire by applying a light to its mouth, the spirit was then poured while flaming into lamps. The flame, spreading on all sides, simulated

the beginning of a great conflagration, but was eventually extinguished by the lightest puff of wind. Any one in need of a light, but without a lamp for properly burning this liquid, may do so by dipping the corner of a pocket-handkerchief or the finger of a glove into it; and thus may be made a temporary torch, which when blown out will be found to leave the improvised wick without the slightest injury. Lamps intended to burn this spirit are constructed in such a manner that they are extinguished if thrown down. It is said to be extremely difficult to form an explosive mixture with the vapor of the new spirit and air, and that in any case the explosion cannot be made violent. The liquid has a slight and not disagreeable odor, and is not dear. It is sold at present at 1 franc per kilogramme (8 cents per pound), and its production is said to be unlimited. It has on other occasions been said to be a product of the Galician mineral hydrocarbons.

Mariette Bey.

Mariette Bey, the celebrated Egyptologist, who died this winter at Cairo, was born at Boulogne-sur-Mer in 1821. In the year 1847 he began to undertake, in his native town, the study of Egyptian hieroglyphics; and, although he possessed very few books to guide him in his researches, made himself master of the principal difficulties to be encountered in the science which Champollion was chiefly instrumental in creating.

In 1850, upon the recommendation of the Institute of France, Mariette Bey, who was attached to the Egyptian Museum of the Louvre, where his knowledge was much valued, was charged with a scientific mission to Egypt with the object of searching out and examining the Coptic manuscripts preserved in the convents; but scarcely had he arrived at Cairo than his attention was drawn to ancient Memphis, whose monuments lie covered by the sand near to the pyramids. Assisted by the guidance obtained from the authors of antiquity, he began excavations and discovered the Serapeum, the sanctuary of the god Serapis, the tombs of the Bull Gods, as well as other archaeological remains of the greatest interest.

Spending four years in the midst of the desert he continued his excavations at Memphis, at Abydos, and at different places in Upper Egypt and Nubia. He unearthed the famous colossus of the Sphinx, which is cut, as is known, in a natural rock at the foot of the pyramids of Ghizeh, and brought to light a number of bass-reliefs, inscriptions, and gold and silver ornaments.

On his return to France, Mariette Bey was made conservator of the Egyptian Museum at Paris. In 1858 he undertook the direction of the excavations in the valley of the Nile, and made fresh discoveries.

We owe to him the unearthing of the Temples of Edfou, Karnak, Medinet Abou, and also the foundation of the Museum of Boulag, at Cairo, where he has been engaged during the last few years in arranging all the valuable objects which have been brought together by his energy and skill. In 1873 the Institute of France awarded him its biennial prize of 20,000 francs.

For some years the health of Mariette Bey had been much affected, and it may be said that he died in harness—a victim of his devotion to archaeology. —*The Architect*.

Mines in Maine.—Cinnabar.

It has at last been generally admitted that we have mines in Maine. We have not, to be sure, been able to show deposits of fabulous richness—ores assaying thousands of dollars to the ton or "chunks of native silver as large as a man's head"—but it has been abundantly proven that Maine contains bodies of silver and copper ores which, with skilled labor, suitable machinery, and honest management, may be mined and sold at a large profit. What more could be asked? It is also a fact that more than two-thirds of our territory has never yet been prospected, although, from time to time, specimens of native gold and rich ores of silver and copper have been brought to us from the almost unknown regions of the State. We have recently seen a piece of pure cinnabar weighing nearly a pound which was taken from the surface with a pick less than 100 miles distant from Bangor.—*Maine Mining Journal*.

Tomato Canning.

The Baltimore correspondent of the *Grocer* estimates the total pack of tomatoes last year in this country at 38,400,000 cans, costing the packers \$3,200,000. The business was distributed as follows:

	Cases.
In Baltimore and Hartford County, Md., and other parts of the State and Virginia	330,000
New Jersey	520,000
Delaware	180,000
New York	165,000
Massachusetts, Connecticut, Rhode Island	155,000
California	50,000
Ohio	80,000
Pennsylvania, Michigan, Iowa, Indiana, and other Western States	120,000
Total number cases	1,600,000