

ART. XIII.—*Correspondence of Prof. JEROME NICKLÈS, dated Nancy, October 2d, 1866.*

*Obituary: Hermann Goldschmidt, the Astronomer.*—The subject of this notice attained to a considerable reputation as an artist, but he is better known to the scientific world, in which he held a high position, by his numerous discoveries among the heavenly bodies.

He was born June 17th, 1802, but during his whole life his health was delicate. Destined at first to commerce, he quitted it to devote himself to painting, and early became distinguished in that career. He was, however, ignorant of his true vocation until he had attained the age of forty-five years. One of his friends, Dr. Hoefer, to whom we are indebted for these details, tells us the circumstances under which he became an astronomer. The recital is copied from Goldschmidt himself. "I had just returned," says he, "full of disgust from a very long sojourn in England. I tried in innumerable ways to dissipate my melancholy humor, but without success, when one day I chanced to attend LeVerrier's lecture on astronomy. The professor explained an eclipse of the moon which was to take place the same evening (March 31st, 1847). I understood the explanation, and in my enthusiasm I exclaimed *anch'io son*. From that moment I commenced with ardor to study a science of which I had as yet only the feeblest notions."

Three years after, Nov. 15th, 1852, Goldschmidt discovered, with a small glass which he had just bought, a planet which received from Arago the name of *Lutetia*, having the brightness of a star of the 10th magnitude. The 26th of October he discovered *Pomone*, which resembled a star of the 11th magnitude. He afterward successively discovered the following: *Atalante*, Oct. 5th, 1855; *Harmonia*, March 31st, 1856; *Daphne*, May 22d, 1856; *Nysa*, May 27th, 1857; *Eugénia*, July 11th, 1857; *Afelete*, Sept. 9th, 1857; *Palés*, Sept. 19th, 1857; *Doris*, id.; *Europa*, Feb. 6th, 1858; *Alexandra*, Sept. 10th, 1858; *Danae*, Sept. 19th, 1860; *Canope*, May 9th, 1861. By reason of these discoveries he several times received the astronomical prize from the Academy of Sciences. He also determined the position of more than ten thousand stars which before had no place upon any known map of the heavens—and it was among these stars that he found the planets previously enumerated.

He made these discoveries with a small glass—and his observatory was situated in one of the most frequented streets of Paris. Not favored by fortune, Goldschmidt lived on a pension paid him by the French government. For a long time he had been troubled with his eyes, but this affliction affected him much less

than diabetes, the symptoms of which he first felt in 1854. He then retired to the country, and for three years lived at Fontainebleau, dividing his time between painting and astronomy. Toward the latter part of last August his disease became complicated with other difficulties. He hastily finished his papers upon the physical constitution of the sun, and died on the 20th of August. He leaves a widow and two daughters without fortune. They will doubtless be adopted by the "Société de Secours Amis des Sciences."

*Spectrum of aqueous vapor.*—We now know the nature of the rays which Brewster discovered in 1833, and which have since been termed telluric or atmospheric. M. Janssen has made several investigations under the patronage of the Minister of Public Instruction, and has found that these rays are occasioned by the vapor of water. By means of new optical dispositions he has proved that the bands of Brewster were formed of fine lines, like the lines of Fraunhofer, and that they were constant in the spectrum, though of variable intensity according to the height of the sun. Relying upon this character of the telluric rays he has made a chart of the spectrum in which the distinction between the solar and telluric rays is clearly shown.

Janssen has also made numerous other experiments. In September, 1864, from the summit of the Faulhorn, he observed the rays of terrestrial origin and found they became weak in proportion as they were elevated and as the light had less thickness of atmosphere to traverse. In the same year he made an experiment upon Lake Geneva, and by reason of the humid air of the lake he was able to reproduce the same rays artificially. The flame from a large pile of pine wood at the distance of 21 kilometers presented these lines, but when viewed at a less distance no ray was visible except the brilliant one of sodium. Janssen stationed himself on the side of the lake opposite the fire, so that the light from the blazing pile, which was on a level with the surface of the water, might penetrate strata of air saturated with moisture.

It was necessary to ascertain if these effects were caused by the water in solution in the atmosphere, or whether, as Mr. Secchi thought, they were to be attributed to the vesicles of which mist and fogs are composed. A direct experiment confirmed him in the opinion that they were produced by the vapor. Janssen operated with a tube thirty-seven meters in length, which was filled with vapor by a steam engine of six horsepower. Care was taken to prevent the tube from cooling, and the light was furnished by a flame of gas placed in the axis of the tube. When the light passes through the tube filled with vapor subjected to the pressure of seven atmospheres it shows the principal telluric rays, among which Janssen places the

groups A and C and a large part of B, contrary to Kirchhoff, who attributes A and B to potassium. The red and yellow of the spectrum of water-vapor are more brilliant than the blue and violet. Therefore the color of the vapor of water should be orange; hence, also, the red of the setting sun, that is, of the sun seen near the horizon. Janssen does not agree upon this point with the conclusions of Prof. Cooke, which were published in this Journal for March, 1866. According to the latter the vapor of water absorbs most completely the yellow and the red rays, hence the blue rays predominate in the spectrum that is transmitted. Prof. Cooke has, however, discovered and demonstrated by his own researches (this Journal, [2], xli, 184, also Journal de Pharmacie et de Chemie, June, 1866, p. 480), the influence of the vapor of water upon the phenomenon in question.

*A new property of magnesium.*—One evening while preparing some perchlorid of manganese,  $MnCl^2$  (this Journal, [2], xli, 107), with the peroxyd of manganese, the chlorhydric acid of commerce and ether, I observed that the color was not green, as it appeared to be in the daytime, but *black*. I was using gas for a light, and substituted in place of it first an oil lamp and afterward a wax candle, but the effect was the same, the color still appeared only black.

The *green* color reappeared by the flame of magnesium, which comports itself in this respect like the light of the sun. It is well known that bright-tinted flowers, colored stuffs, or pictures, exhibit much less brilliancy of coloring by wax or even gas light than when seen by the light of day, and should an artist, at the close of the day, wishing to supply the waning light, continue his work by the aid of wax lights or gas, he would be surprised the next morning at the assemblage of colors he had made the evening previous. They would in no way represent his thought, so different would they appear when viewed in the two lights.

By burning a thread of magnesium a light may be obtained which will make these colors appear the same as when seen by sunlight itself. Colors do not mingle or interchange by this light as they do by ordinary lights. Green does not appear to be blue in it, neither does blue have the slightest appearance of green. In short, all shades preserve the same appearance as when viewed in the full light of day. The flame of magnesium is whiter than solar light, and the blue predominates in it. Chemistry aids the painter not merely by furnishing colors more or less bright, but it now gives him a new mode of illumination by means of which he can labor at night without fear of optical deception, as well as if it were daylight.

*The influence of sodium upon flame.*—On inquiring the reason for the extinction of color by the usual flame, which we have

just been discussing, it will be found that numerous causes produce this effect, one of which is *sodium*, which burns with a *yellow* (monochromatic) flame, that may be obtained either by bringing common salt supported on platinum wire into the flame of the Bunsen lamp, or by burning alcohol saturated with salt. All the colors are altered by this flame, with the exception of blue-violet, which is complementary to the yellow. Red appears black or white, sometimes bluish when it contains blue (see below, *physiological effects*). Mixed green appears *yellowish* or bluish (chlorophyl Schweinfurth green). The pure greens appear black (ex.  $\text{MnCl}^2$ ,  $\text{MnBr}^2$ ,  $\text{MnI}^2$  combined with ether,  $\text{BaOMnO}^2$ ,  $\text{Cr}^2\text{O}^2$ , gold leaf seen by transmitted light,  $\text{Cr}^2\text{Cl}^2$ , &c.). Vide Annales de Chem. et de Phys., [4], viii, 298, for the enumeration of the various colors which have been experimented with.

The following table gives the result of some trials which I have made with a spectrum prepared by applying pigments to white paper. We give the composition of the spectrum and the colors with which it was obtained.

| Colors seen by daylight. | Coloring material.                      | Colors seen by a monochromatic flame. |
|--------------------------|---|---------------------------------------|
| Red.                     | Ochre ( $\text{Fe}^2\text{O}^3$ ),      | Black.                                |
| Orange.                  | Iodid of mercury ( $\text{HgI}$ ),      | White.                                |
| Yellow.                  | Chromate of lead ( $\text{PbOCrO}^3$ ). |                                       |
| Green.                   | Manganate of baryta, }                  | Black.                                |
| Blue.                    | Aniline blue, }                         |                                       |

In this spectrum so wonderfully changed by the flame of alcohol saturated with salt, sunlight and the flame from magnesium instantly restored the normal colors, even while the sodium flame was burning in the neighborhood. They also reappeared by gaslight, but with much less intensity, and when the colors are not very brilliant they are modified as if they were illuminated by the soda flame.

Thus ethereal solution of perchlorid of manganese when impure appears by gas light *black* instead of *green*. A mixed green composed of chromate of lead ( $\text{PbOCrO}^3$ ) and ultramarine behaves in the same manner.

If the illuminating flame were saturated with sodium its extinctive effects would be still more energetic, ordinary flames containing but very little of this metal. Spectral analysis shows us that instead of completely extinguishing colors it merely alters them a degree more or less, darkening some and enlivening others, and creating confusion between blue and green.

The small quantities of sodium which all ordinary flames contain, are derived from several sources, viz., the mineral matters of wicks of lamps and candles, ashes of fuel and atmospheric air, which last, according to Bunsen, always contains traces of it.

Vogel has determined the proportion of soda which illuminating gas contains (*Journ. de Pharm. et de Chem.*, October, 1866), and Mulder has shown (in the same Journal, May, 1866), with what facility marine salt volatilizes when heated with coal.

Small as the quantity of sodium is which illuminating gas contains, it is sufficient to affect certain colors, and to produce on a small scale all the effects of absorption or extinction which are readily seen in a flame saturated with it. Examples of this may be seen in certain green colors mentioned above.

*Physiological effects of the monochromatic flame.*—The foregoing results explain a well known phenomenon, which has hitherto never been accounted for. In the flame of alcohol and salt, the hands and face appear of a *livid green* hue, while the lips change to a *blue-violet*. This livid tint is known to all who have seen punch or a pudding burn, and is due to the alcohol more or less saline which is employed in these mixtures. Workmen at furnaces and forges are familiar with these peculiar tints, which appear upon the features illuminated by their fires.

In the first case the effect is produced by the NaCl which the alcohol contains of itself or which it derives from the alimentary substances; in the latter case the soda is obtained from the dross, and ashes of the combustible matters. The question arises, why under these conditions, the natural flesh color is changed to a *bluish* or livid green. The reply is evident. It has been shown above, that the colors which best resist the extinctive effects of the soda flame are those which come from blue.

That there is blue in human blood may easily be seen by the color in daylight of the large veins on the skin of the hand. All the other tints which enter into the composition of flesh color being extinguished except the blue, that shade alone remains upon the face of the experimenter, but being also illumined by a yellow flame, it is plain that the effects of the two colors will be to produce a *green*, varying in shade from yellowish to bluish according to the intensity of the blue, and producing a most sinister aspect on the human countenance. The eye speedily accommodates itself to these effects, but I have good reason for thinking that one cannot with safety, continue to work for any great length of time by this monotonous light. The retina after a time becomes so much affected as not to be able to bear without irritation either daylight or the ordinary illumination used at night, a result possibly caused by the absence of chemical rays in the flame, or because it injures the optic nerve which is poorly adapted to such a medium.

After sitting for a considerable time in the soda light, there comes a time when it is difficult to distinguish between the different shades of the same color. I have many times seen a tuft of leaves appear of the identical shade of the hand which held it, so

that the whole had the effect of a bronze, while at the beginning of the experiment before the eye had become fatigued, it was easy to distinguish between the violet of the chlorophyl and the livid green of the flesh color.

*Employment of the Sodium flame by artists.*—We have previously shown that the different colors of the spectrum may be reduced to white or black, unless they contain blue which is the only color unaffected by the soda flame.

In observing such a spectral image it will be noticed, that if all the colors are reduced to either white or black, the borders are more or less darkened or dulled as in a photograph of the spectrum. Looking at a painting, especially a pastel containing very little if any blue, under these conditions, one is struck with the fact, that although the colors vanish, the grayish tone which represents them gives the appearance of a pencil drawing. The model or plan exists by reason of the half tints so that by the monochromatic light, one is sometimes able to go back to the design without touching the picture and can thus give in some sort the autopsy of a work of art.

The flame of sodium may yet aid the painter in comparing shades, in grouping colors and weighing their tones.

In the same manner, two colors, for example two *greens* which appear identical upon the palette, in the daytime, may be different when seen by common evening light, and are more likely to differ when viewed by the sodium flame, one being decolorized and the other transformed into black. In the same manner, of two *reds* seen under the same conditions, one may appear white, while the other containing *blue*, will assume a *violet-tint* complementary to the yellow of the monochromatic flame.

Common salt ignited on a platinum wire in the flame of a Bunsen burner, strikingly exhibits the chemical differences which sometimes exist between two similar shades of color. This means may be useful in distinguishing original pictures from copies, for it is not likely that Raphael or Van Dyck, for instance, employed exactly the same pigments as their copyists have used.

If one desire to render the flame of a gas burner or of an oil lamp monochromatic, it cannot be done with  $\text{NaCl}$ , for the flame is not hot enough to volatilize that compound. Metallic sodium should be used for this purpose, which may be introduced into the gas burner or held in the flame upon platinum wire.

*Perchlorid of Lead,  $\text{PbCl}^2$ .*—In connection with what we said last year (this Journal, [2], xli, 107 and 55) upon the halogen compounds corresponding to the peroxyds, we have since obtained the compound  $\text{PbCl}^2$  corresponding to the peroxyd of lead  $\text{PbO}^2$ . Unstable in a free state, it may be preserved for a long time in presence of a solution of chlorid of calcium.

It is prepared by passing a current of chlorine into chlorid of

lead held in suspension in a solution of  $\text{CaCl}$  of  $40^\circ$  Beaumé. The liquid becomes yellow and acquires very curious properties. Thrown into a small quantity of water, it gives a precipitate of  $\text{PbCl}$ —with excess of water a brown precipitate is formed of  $\text{PbO}^2$ . 
$$\text{PbCl}^2 + 2\text{HO} + \text{Aq} = \text{PbO}^2 + 2\text{ClH} + \text{Aq}.$$

In this case the hydrochloric acid does not react, because of the excess of water present, if there were less the result would be 
$$\text{PbO}^2 + 2\text{ClH} = 2\text{HO} + \text{PbCl} + \text{Cl}.$$

The perchlorid of lead does not act upon the nitrate of bismuth, behaving in this respect differently from  $\text{TlCl}^2$  (this Journal, [2], xli, 107). When heated it blackens cane sugar but not glucose, and hence may serve to distinguish between these two kinds of sugar.

Treated with anhydrous ether and syrupy phosphoric acid, the solution of perchlorid of lead thickens, and yellow oily drops appear, which are perchloro-plumbic ether. This ether readily dissolves gold, and as the metal is taken up chlorid of lead separates assuming the form of the gold employed. The perchloro-plumbic ether readily decomposes; the products are protochlorid of lead and chlorinated ethers. The ease with which chlorine separates from it, is the cause of its solvent power on gold, in which respect it is like the bodies presently to be noticed.

*New solvents for Gold.*—The perchlorids dissolve gold readily when that metal is in the form of leaf, on account of the facility of their decomposition with liberation of chlorine. If ethereal solution of perchlorid of manganese be employed, the green color of the manganese compound grows lighter in proportion as the gold dissolves, for  $\text{MnCl}^2$  is reduced to  $\text{MnCl}$ , and the reaction is complete, when the liquid has exchanged its green color for the yellow of the solution of gold, (it is the same with  $\text{MnBr}^2$  and  $\text{MnI}^2$ ).<sup>\*</sup> On evaporating the liquid, a film of gold adheres to the vessel. The same solution added to  $\text{FeOSO}^2$  yields the precipitate of gold so characteristic for its dichroism.

The sesquichlorids, and the sesquibromids which are easily reduced—for example, the compounds corresponding to  $\text{Mn}^2\text{O}^3$ ,  $\text{Ni}^2\text{O}^3$ ,  $\text{Co}^2\text{O}^3$ ; also  $\text{Fe}^2\text{Br}^2$  even in presence of a certain proportion of  $\text{FeBr}$ —dissolve gold;  $\text{Fe}^2\text{I}^2$  is also a good solvent for gold especially in presence of ether. It is only necessary to add a small quantity of  $\text{Fe}^2\text{O}^3$  to the ethereal solution of iodhydric acid, in order to dissolve the metal. This proves that iodine in the nascent state acts upon gold. For this reason gold is acted upon even by iodhydric acid *in presence of ether*. No action takes place when only water is present. It can no longer be said with truth, that free iodine does not act upon gold. I have found that gold may be dissolved by it in presence of water,

<sup>\*</sup> This Journal, [2], xli, 107.

when put into a close vessel and raised to a temperature of 50°. The action is more slow if ether is used in place of water. Exposure to strong sunlight will hasten the solution.

*Some new facts concerning amalgamation.*—In vol. xli, p. 225 of this Journal, Prof. Silliman has described some properties of the *magnetic amalgam*, composed of mercury and sodium. The following experiment readily shows the great difference between the action of mercury and that of sodium amalgam.

Take a square of glass, to which apply side by side two leaves of beaten gold. If a drop of ordinary mercury be placed on one of these leaves, it adheres without sensibly increasing in area. On the contrary a small drop of the amalgam spreads out with great rapidity, so that in a few seconds the mercury has covered a space many hundred times larger than that which the original drop occupied.

I showed in 1853 (in this Journal)\* that the metals moistened by mercury are permeable to it; that proposition has been verified upon the metals since discovered or prepared, viz., *thallium*, *aluminium* and *magnesium*. Thallium is easily amalgamated, and becomes brittle by the penetration of mercury; on the contrary, magnesium and aluminium resist its action or are not wetted by it until recourse is had to electric action, such as is realized by the intervention of sodium or zinc.

It would be interesting to observe the deportment of *indium* toward mercury. If it were capable of being moistened it would form with it a brittle amalgam; on the other hand, if it were not moistened it would retain all its elasticity. I leave the question to those who are fortunate enough to possess this metal so rare, and so difficult to obtain in a metallic mass.†

*Chemical synthesis.*—M. Berthelot continues his beautiful researches in synthesis, and is at present occupied with the generation of hydrocarbons. Our readers know that he formerly obtained acetylene,  $C^2H^2$ , by the direct union of hydrogen and carbon (this Journal, 1862). Berthelot has lately shown that a whole series of hydrocarbons, polymeric with  $C^2H^2$ , may be derived from it as follows:

|                             |   |   |   |                            |
|-----------------------------|---|---|---|----------------------------|
| Acetylene,                  | - | - | - | $C^2 H^2$                  |
| Di-acetylene,               | - | - | - | $C^4 H^4 = 2C^2 H^2$       |
| Tri-acetylene or benzine,   | - | - | - | $C^{12} H^6 = 3C^4 H^2$    |
| Tetracetylene or styrolene, | - | - | - | $C^{16} H^8 = 4C^4 H^2$    |
| .....                       | - | - | - | .....                      |
| Retene,                     | - | - | - | $C^{36} H^{18} = 9C^4 H^2$ |

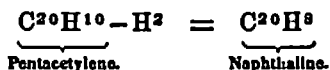
This table is the result of actual experiment and not of theoretical speculation.

\* J. Nicklès, On the Permeability of Metals to Mercury, [2], xv, 107.

† A sheet of platinum that has been for four months in contact with amalgam of sodium still preserves all its elasticity.



Berthelot has observed still another series of hydrocarbons, between styrolene and retene, the boiling point of which is between  $260^{\circ}$  and  $340^{\circ}$ , and which possess to a great extent the characteristic fluorescence of pyrogenic oils of resin. Berthelot regards these hydrocarbons as  $C^4H^2$  six, seven, and eight times condensed. Between  $210^{\circ}$  and  $250^{\circ}$  there passes over a liquid which, when placed in a freezing mixture, yields crystals of naphthaline. The origin of this interesting hydrocarbon is easily explained, naphthaline being in fact only pentacetylene less  $H^2$ .



Naphthaline is produced equally well when acetylene is passed into a tube heated to redness. There is, however, in this case but a small quantity formed, for the acetylene is chiefly decomposed into carbon and hydrogen.

*Acclimation of the Camel in Australia.*—The introduction of the camel into Australia has been previously announced, and it was effected by the "Société d'Acclimatation." We now learn that these animals have adapted themselves to that country, as has been shown by a recent expedition consisting of seventy horses, fourteen camels, and fifteen men. The springs of living water upon which they depended having been dried up, sickness broke out in the camp. The men fell back upon their stores of spirituous liquors, the horses took to flight, while the camels alone remained at their post. It is owing to this circumstance solely that the expedition was reorganized. At last accounts the caravan had arrived at Thompson river.

*Acclimation of the Salmon.*—The eggs of the salmon which have been introduced into the waters of Australia have hatched and the young fish are prospering. Ice has been used in the transportation of the eggs, which, according to Mr. Youle, retards the phenomena of embryonic evolution. This gentleman has found that the vitality of the eggs may thus be preserved for three or four months. It is in this manner that eggs taken from the Rhine at Huningen in Alsace have been successfully transported to Australia. Sweden and Norway are both occupied in stocking their rivers with salmon, so that the fine example of the Zoological Society of Acclimation will not be lost.

*Spontaneous generation.*—This interesting question is from time to time discussed by the Academy of Sciences, but without much progress being made toward a decision. Mr. Donné, a naturalist who formerly opposed the doctrine of spontaneous generation, has made some late researches which have caused him to change his mind on the question, and he has just ranged himself on the

side of Messrs. Joly, Musset, and others, giving it as his opinion that spontaneous generation is a possible fact.

His later experiments, like those which he published an account of in 1863, were made with eggs. At that time he wrote: "The matter of which the egg is composed ought to be eminently suited to a primitive organization. I will leave the entire eggs to themselves, and when the alteration of their contents has well progressed, I will examine with the microscope the interior substance. If spontaneous generation is possible I ought to find organized beings there." The result was negative. Mr. Donné found neither mold nor infusoria, and he decided against spontaneous generation. Since then objections have been raised which decided Donné to resume his experiments. He reasoned thus: "The small quantity of air contained in the eggs was perhaps not sufficient to determine the phenomenon of a spontaneous generation, that is, to give life to a certain molecular arrangement of organic matter." Consequently he conducted his experiment in such a way that a larger quantity of air could have access to the eggs, the air having been previously deprived of any bodies it might hold in suspension, by passing through carded cotton. This time he obtained a generation of different kinds of mold, but found no traces of animalcules. He concludes 1st, "Microscopic vegetation may be produced at will in organic matter, left to itself, and protected from the intervention of foreign germs. 2d. Air is necessary to the development of infusorial animalcules. 3d. Air is indispensable to spontaneous generation in both kingdoms. The temperature of 30° is the most favorable to these productions."

To these conclusions the adversaries of the doctrine oppose their usual objections, viz., there were sources of error in the experiment, atmospheric germs in some way penetrated the eggs of which the shells were broken. The question thus remains still at the same point, and up to the present time it cannot be said to be experimentally resolved.

*Mexican Scientific Commission.*—This commission, instituted by M. V. Duruy, Minister of Public Instruction, continues its labors, which will perhaps be the only work to survive the unfortunate intervention of the French in Mexico. The commission is engaged solely with science, and may be judged of by what has formerly been said of it in this Journal, (Jan. 1866, p. 110). The third part of the second volume of its publications has appeared, containing geological papers by J. Marcou upon the frontiers between Mexico and the United States; by MM. Dolfus, Pavie, &c., upon Mexican volcanoes; and the geological sections from Vera Cruz to Mexico. Other papers are reports upon the Mexican fauna and flora, also upon the ruins of Uxmal and Mayapan, Ti-hoo and Izamal, &c.

### Bibliography.

*Traité des propriétés des figures*, par le General PONCELET. 2d edition, 2 vols. in 4<sup>o</sup>, avec planches.—This work, which is a complete *exposé* of this important subject, contains also the principal discoveries which the illustrious general has made in this department of inquiry. He has been engaged on the work since 1812, and was occupied with it when taken prisoner of war in Russia on the retreat from Moscow. The second edition, besides many improvements, contains *the general theory of the centers of harmonic means; polar reciprocity; analysis of transversals*, and their principal application to the projective properties of curves and geometric surfaces.

*Cours d'algèbre supérieure*, par SENART, Membre de l'Institut, Prof. au Collège de France, et à la Faculté des Sciences des Paris. 8d edit., 2 vols. in 8vo.—The first two editions of this work were disposed of with great rapidity. The third contains many improvements by the author. While this learned man does not pretend that the work is a *complete* treatise upon higher algebra, it contains notwithstanding a body of doctrine which will be of great use to those geometers who are engaged in this important branch of mathematical analysis.

*Traité d'Astronomie pour les gens du monde*. 2 vols. in 12mo, avec 2 planches and 162 figs. dans le texte.—This work contains a resumé of the lectures which Mr. PÉRRÉ has given during the last 27 years at the Observatory of Toulouse, of which he was director. The treatise is elementary, but calculations are not excluded. There are besides, in the form of notes, details and anecdotes in respect to important discoveries as well as distinguished astronomers.

*Eléments de Mécanique*, par Mr. VIEILLE. In 8vo, de 256 pages avec figures.—Vieille is Inspector General of the University of France. This work of his is designed for the use of the various colleges, and is fully adapted to that purpose.

*Le Chimiste*: a Journal of Chemistry applied to Arts and to Agriculture; published by HENRY BERGÉ, Professor of Chemistry at the *Musée de l'Industrie* at Brussels.—This journal appears semi-monthly, costs but 8 francs per year, and, according to its title, contains the novelties in the department of chemistry applied to the arts. Each part consists of 16 pages 8vo.