

larly-describing the place to be searched, and the person or thing to be seized."

"ARTICLE 5.—No person shall be held to answer for a capital or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor be deprived of life, liberty or property, without due process of law."

"The want of these restraints in the original instrument," he continued, "endangered its adoption. They were inserted to satisfy the public demand. We are now told that they are of no avail in any part of our country, when the Executive shall see fit to declare there is war or insurrection in any section of this land."

Gov. Seymour did not feel disposed to be longer silent, or allow these baneful practices to become precedents. He regarded them as much in violation of the Constitution, as the rebellion itself, and even more dangerous to the people's liberties; holding out, to the Executive, as they do, every temptation of ambition to make and prolong war, offering despotic power as a price for preventing peace; inducing succeeding administrations to produce discord and incite armed resistance to law, by declaring that the condition of war removed all constitutional restraint; calling about the National Capital hordes of unprincipled men, who find in the wreck of their country the opportunity to gratify avarice and ambition, or personal or political resentments. This theory of "military necessity," he further solemnly affirmed, "makes the passion and ambition of our Administration antagonistic to the interest and happiness of the people;" and, "the restoration of peace the abdication of more than regal authority in the hands of those to whom is confided the government of our country."

The President's emancipation proclamation, he logically inferred, in its force and operations, was solely directed against that class of citizens in the South who have remained true to the flag of our country and who, above all others, are entitled to the protection of the Government. The President having some time since signed an Act of Congress confiscating all the slaves of those in rebellion, this proclamation, of course, can only be designed to emancipate the slaves of those who are not in rebellion. He then purgently inquired:

"May not this measure, so clearly impolitic, unjust and unconstitutional, and which is calculated to create so many barriers to the restoration of the Union, be misconstrued by the world as an abandonment of the hope or the purpose of restoring it—a result to which the State of New York is unalterably opposed, and which will be effectually resisted."

The popular effect of the following statement must be at once perceived and possibly may ere long disclose itself in furious outpourings of opposition and resentment at the North, against the malignant perpetrators of constitutional dethronement, insulted liberty and desecrated rights—whatever or whatever they may be, such as will make the ears of the mass-condemned agents thereof to tingle:

"If it is true that Slavery must be abolished by the force of the Federal Government; that the South must be held in military subjection; that four millions of negroes must, for many years, be under the direct management of the authorities at Washington at the public expense; then, indeed, we must endure the waste of our armies in the field, farther drains upon our population, and still greater burdens of debt. We must convert our Government into a military despotism. The mischievous opinion that in this contest the North must subjugate and destroy the South to save our Union, has weakened the hopes of our citizens at home, and destroyed confidence in our success abroad."

The affinity of commercial interests existing between the North-west and South-west, embracing the valleys of the Upper and Lower Mississippi is made fully apparent; also the losses to the North-west consequent upon the interruption of the navigation on the Mississippi. During the past two years, with active foreign demand for breadstuffs, and a vast consumption by armies at home, the farmers in a great section of the West have not realized the cost of their produce. The remedy for so great an evil, he thinks, will not be found in the reduction of the cost of transporting the products of the West; nor in the opening of the Mississippi as a channel to the world's market. Prosperity can only be restored to the great West by a political, commercial, and social re-union with the valley of the Lower Mississippi. They must have free access to the market of the South-west. Their grain and provisions must be converted into

cotton, and in this form carried profitably to a market in the East. So closely bound together by interest are the Upper and Lower Valleys of the Mississippi that, "when cotton is burned in Louisiana, Indian corn is used as fuel in Illinois." Thus the ruin of the Southern consumer brings bankruptcy upon the Northern producer.

He could not for a single moment consent to any propositions looking to a permanent dissolution of the Union. Every exertion of power must be put forth; every conciliatory policy used; every inducement held out to the people of the South to return to their allegiance; every right and consideration demanded by the Constitution guaranteed to them, strengthened by an acknowledgment of that fraternal regard which must prevail in a common country; but he could never voluntarily submit to the breaking up of the Union, or the destruction of the Constitution.

The restoration of the Union, in his judgment, can never be brought to pass by war alone. Those measures which might be most effectual in ordinary insurrection, are not applicable to a wide-spread armed resistance of great communities; and to this truth, he urges, it is national folly to shut our eyes. Neither can the Union be restored by the inauguration of "any bloody, any barbarous, any revolutionary, or any unconstitutional scheme, looking merely to the gratification of hatred, or purposes of party ambition, or sectional advantage." The Union must be restored, but, said he,

"Let no one demand that the blood of his neighbor shall be shed; that the fruits of the labor of our citizens shall be eaten up by taxation, to gain this end, and then refuse to give up his own passions, or to modify his own opinions, to save our country and to stop the fearful waste we are now making of treasure and life. Let no one think that the people who have refused to yield this Union to rebellion at the South, will permit its restoration to be prevented by fanaticism at the North."

Whether or not the action of the administration through the agency of Gen. Wool, commanding the Department of the East, with headquarters at New York city, was designed as a preventive measure against the probable effects of Governor Seymour's message upon the masses in the State of New York and other northern States, it is certainly reported that, on Wednesday, 21st inst., Gen. Wool issued orders to the commanding officers of the whole militia of the State to report to him the number of each corps ready for duty, which orders were quietly served by the Department commander himself. Whether assuming this task himself from his extreme utilitarian and industrial proclivities, the difficulty of procuring qualified aids, or the existence of a great exigency which demanded the most profound secrecy in the maneuver, report says not.

It is reported that the high orders, bearing thus self-served, were responded to by the 2d division of the New York Militia. The other divisions, however, flatly refused on the ground that Governor Seymour was legally the commander-in-chief of the forces of the State.

This new and strange movement, it is further reported, created great excitement in military circles—the prevailing opinion being that it embodied a design on the part of the National Administration to place the militia of the State under their control.

CHEMISTRY AND PHYSICS.

BY ALEXANDER OTT.

The analysis of the air relative to its properties and combinations such as gases, etc., would be an utter impossibility, if it were not for a sound knowledge of chemistry and physics. These two sciences show plainly and emphatically the particular relationship existing between the animal and vegetable creation and the air; the importance of this elastic, mobile matter surrounding the earth, and the wonderful changes which fluids and other bodies have to undergo in the endless variety of crystallizations and formations.

How much superstition and ignorance have not been removed by chemistry and physics, facilitating the march of knowledge and assisting man in the classification and interpretation of nature, causing the light of science to shine both on the domestic altar and the forum! If the prevailing temperance of thought and reticence of expression, in some degree remove philosophical studies from the sphere of so-called popular sympathy, they will be welcome to those whose mind is more upon the economy of nature in its mysterious and wonderful details, than upon the frivolities of the world.

The student, as he advances step by step,

becomes more and more interested, and desires with greater energy to unlock the inexhaustible treasures of knowledge. To him who loves more to examine the substance than the garb, the idea more than its embodiment, the numberless items of organic and inorganic life, the animalculæ in their simple but interesting physical constitution, are objects of intense study.

Thus, for instance, the elasticity of gaseous matter is a remarkable and highly useful feature in the nature of the atmosphere, when speaking of it as a body condensed to a certain degree, as upon this curious phenomenon depends the construction of the air pump, an instrument by means of which the air can be exhausted from any given space, and thus its mechanical properties be shown in a striking manner, and a variety of interesting facts be ascertained.

The pressure of the air upon every square inch being nearly fifteen pounds, that is, more than two thousand upon a square foot, the human body has to bear an atmospheric pressure of from thirteen to fourteen tons, which, however, on account of the uniform distribution of that mobile matter, is hardly perceptible, as long as the equilibrium of the particles of air remains undisturbed. But as soon as the harmony of the atmospheric strata is operated upon in the slightest degree, as for instance, by the quick and sudden movement of a person, a motion of the air like that of a gentle play or breeze is experienced. If different currents meet at a velocity of twelve miles an hour, a strong breeze is produced; if at the rate of sixty, a storm; and at one hundred, or as is sometimes the case, at three hundred miles, a hurricane which will sweep everything before it; for at the rate of ten miles an hour, it would bear upon an object with a force of half a pound to the square foot, and at a velocity of three hundred miles, with a force of four hundred and fifty pounds.

Thus, in consequence of the air entering the pores of all solids, except gold and platinum, fluids cannot evaporate so readily, hence their boiling point is raised, and thus at a much lower temperature, water will commence to boil when in an entirely exhausted place.

In relation to the weight of air, it will easily be ascertained from an experiment, that a light flash or pipe of glass, hermetically closed, when exhausted by the air-pump, weighs considerably less than when full of air. If, for instance, a bottle would hold about two hundred cubic inches, the difference of weight will amount to about sixty grains.

It is on the pressure of air, that steam-boilers frequently explode, in consequence of the accidental formation of a partial vacuum within. Experiments showing the expansibility of gases and vapors of volatile liquids, have been made on a very extensive scale in Paris, before the Academy of Sciences, by Francois Arago and Dulong, and in Berlin, by Prussia, by Alexander von Humboldt, Pohl and other eminent savans.

Upon metals heat operates with a very great force, that is, the peculiar property of the caloric to expand, appears to entirely penetrate everything of a porous character, whether solid or liquid, inasmuch as the particles or atoms constituting a body, are gradually, sometimes slower, sometimes quicker, rent asunder, the caloric medium entering deeper and deeper into the metal, unless the counter-agency of a colder temperature appears, whereupon the body shrinks to its former size.

The ratio in which liquids and metals expand, varies materially, and depends much whether the increase of heat is carefully prepared or not. Up to the boiling-point of water, that is 80° Reaumur or 212° Fahr. metals expand tolerably uniformly, but above that the process of expansion becomes irregular and more rapid. Considering the great force with which metals are apt to expand, engineers are absolutely required to make provisions for changes in dimensions, while erecting iron-bridges, laying gas-pipes, etc., for the least neglect or inattention to the curious and often deleterious effects of the caloric, may often result in serious accidents.

Gases in their peculiar nature are differently affected by heat, that is, the rate of expansion varies a little; the difference is, however, in most cases so small and nice, that it is generally overlooked. The compressed state of a gas causes a greater expansion for an equal rise of temperature.

Hence the greatest difficulty which a person encounters in chemistry and physics relative to a true standard measure of gases, is to compare them in states equally distant from their point of condensation. If, for instance, the elasticity in different gases, such as those which are easily liquefied, to be carbonic and sulphuric acid, would be sufficiently reduced or brought to an equilibrium, there would be no difficulty to discover how much the volume of a gas would be increased or diminished by a particular change of temperature.

The motion of atmospheric particles in the shape of currents, depends on the ready expansibility of that mobile fluid, called air. From physical geography is known the fact of there being a greater uniformity of climate in the torrid zone than in the temperate one. In the former, the rays of the sun are always direct, days and night are equal, while in the latter, viz., in the temperate zone, the obliquity of the solar rays, and the inequality of days and nights are productive of great meteorological anomalies, that is to say, much heat is being accumulated during the summer and much cold during the winter.

On the authority of Alexander von Hum-

boldt, De Saussure and others, a very interesting phenomenon is connected with the transmission or conduction of the caloric in all organic and inorganic bodies. The chemical and physical affinity and antagonism which exist between different elements, exist likewise between the component parts thereof, that is, for instance, some bodies are apt to be very excellent recipients of the caloric, others only poor ones. The great facility with which heat is being conducted through iron, is well known, and can easily be experienced by applying a thin rod of that metal to a fire. In a very short time the iron will become too hot to be handled or even to be touched.

In consequence of the component particles of solids being held together by cohesive attraction, that is, by a power by which atoms of matter are united in one body, the heat is required to operate with a certain force which exactly corresponds with the resistance it receives from a certain matter. If, for instance, a piece of iron has a cohesive power of .18, the caloric will apply a force of at least .24.

Thus we find the mysterious law of an increase of power by bringing particles together in the ratio of a geometrical proportion, prevailing even in metals and gases.

On examining the peculiar nature of vapors or elastic fluids, we find that on account of the cohesive force being less developed, that is to say, in consequence of the particles or atoms constituting such a body, possessing a greater mobility or looseness than the component parts of metals, the caloric can easier penetrate the pores, and thus sooner separate the atoms. Consequently, gases are, on account of their extraordinary property to expand, more readily affected by heat than any other body.

CHARTER

Granted to the Bannock City Express Co. by the citizens and miners of Bannock City, Dakota Territory:

Whereas, we the citizens and miners of Bannock City and surrounding country of Dakota Territory, are not visited by any United States mail, and consequently have no reliable or direct communication with any portion of the civilized world, and as we feel the want and necessity of a safe and reliable Express line from this place to G. S. L. City; and as any person or persons undertaking the same must incur the danger of losing their property and their lives: Therefore, in order to encourage and to do justice to the deserving and enterprising members of the Bannock City Express Co., consisting of A. J. Oliver, Ed. House, A. H. Conover, and G. W. Clayton; who have, under the present and existing dangers and difficulties, started their Express line from Bannock City to G. S. L. City, we do hereby give and grant unto the said A. J. Oliver, Ed. House, A. H. Conover, and G. W. Clayton, the full right and exclusive privilege of running said Express from Bannock City to G. S. L. City as aforesaid, for the space of two years as follows to wit: Said Express shall be carried in a light wagon or coach when the condition of the roads will permit, and on pack animals when the roads are impassable for wagons or coaches, and regular trips to and from Bannock and G. S. L. Cities shall be made once in every month during the winter season, and regular trips once in each week during the remainder of the year. We do also authorize said Express Co., their agent and attorney to receive and collect the following prices for Express matter carried by them: For letters and papers fifty cents each, for each package less than one lb., fifty cents, for freight, &c. per lb., fifty cents, for all money, gold dust, treasures, &c., ten per cent., and a reasonable charge for passengers.

The above grant or charter shall be subject to the following conditions: said Express shall be carried as above specified, unless circumstances over which the parties have no control, or unavoidable accidents shall render it impossible; and said Company shall be subject to the common law in relation to common carriers, and be liable and responsible for all moneys, packages, goods, &c., unless they should lose them by the act of God or public enemies. And in case said Company shall fail to comply with any of the foregoing conditions, then in that case, this grant or charter as aforesaid with all their rights and privileges under the same, shall be forever forfeited.

This 21st day of Dec., A. D. 1862.

W. W. Stapleton.
D. Thomason.
A. Partridge.
R. E. Nuckolls.
Geo. Conroy.
A. H. Copley.
F. A. Burr.
S. Wild.
R. T. Harris.
O. D. Farlin.
Jno. Scudder.
Jas. H. Bay.
Dr. O. Dalton.
F. H. Woody.
T. D. Pitt.
H. P. A. Smith.
D. Black.
M. L. French.
P. R. Madison.
Cha. Wyman.
J. Stimpson.
A. Stanley.
Dr. E. D. Leavitt.
W. Rife.
J. E. Galloway.

W. C. Rheem.
F. A. Meredith.
H. W. Higgins.
Dr. R. P. Hoyt.
Dr. C. L. Young.
H. Zoller.
A. F. Watkins.
B. B. Burdett.
J. B. Caven.
Jas. Smith.
G. Kauter.
A. C. Gillette.
A. Lutz.
N. W. Burris.
Jas. Boulton.
Dr. A. R. Y.
Jas. Gammett.
T. M. Cassin.
Dr. J. S. Glick.
Col. Saml. McClain.
R. P. Lewis.
W. C. Goodrich.
W. C. Stickney.
And three hundred and sixty others.

—Bulwer says there are times when nature, like a bath of youth, seems to restore to the jaded soul its freshness—times from which some men have emerged as if reborn.