

# PROFESSOR AGASSIZ ON THE DARWINIAN THEORY.— INTERESTING FACSIMILE LETTER FROM THE GREAT NATURALIST.

The fact of the strong antagonism which the late Professor Agassiz always manifested toward the Darwinian theory is too well known to need any reiteration here. The recognized leader of the anti-evolutionists, during the latter part of his life no small portion of his efforts were directed toward combatting views which he believed not only merely erroneous, but both baneful and detrimental to true scientific advancement. In this connection the autograph letter, which we produce (by the photo-engraving process) in fac simile herewith, is invested with unusual interest, for in it, and in even fewer words than the concluding paragraph of the first essay of that series which it was his fate never to complete, the great scientist sums up his condemnation of the theory which to him was destitute alike of foundation and truth.

We are indebted for the letter to Mr. James H. Parsons, of Franklin, N. Y., who, in an accompanying letter, tells us that, after reading one of Agassiz's lectures on "The Egg," in which Darwinism suffered some heavy blows, he wrote to the Professor on the other side of the question, and described some monstrosities or "sports" which he had lately encountered. Our correspondent suggested that these "sports" might perpetuate themselves, that subsequent generations might depart still further from the original types, and so an entirely new species result. To which Agassiz replied in the letter we present. We need hardly add that to every inquirer into the secrets of Nature, to every seeker of scientific truth for its own sake, the words should remain indelibly impressed upon the memory.

## Air Supply for Miners and Divers.

Humboldt invented an apparatus, filled with compressed air, which could be carried upon the back and was provided with a breathing tube and a mouthpiece with double valves, so that the fresh air was admitted from the vessel and the consumed air discharged into the irrespirable atmosphere. This apparatus was then improved by Boisse and Combes, and later by M. Rouxquayrol, mining engineer, of St. Etienne, and M. Decayrouze, manufacturer, of Paris, to such a degree that we now possess an entirely reliable arrangement, both for diving in water and foul air, and which, at the same time, will supply a submarine lamp or a Davy safety lamp with fresh air. The apparatus used in German mines are of several kinds. A watertight dress, with helmet and the air regulator, serves for diving in water, or the latter is used alone in combination with a nosesqueezer. In irrespirable or explosive air, the latter alone is employed, either as a low pressure apparatus, when the diver remains in connection with the air pump through a hose, or as a high pressure apparatus, when air compressed to 25 atmospheres (375 lbs. per square inch), is carried on a barrow in strong steel cylinders, which will make the diver and his light independent for three hours. The regulator is of a very ingenious construction, and expands the compressed air just as much as the pressure of the surrounding atmosphere will allow, and no high pressure air can ever enter in the lungs and endanger the life of the diver. The physiological effect of compressed air upon the human body has been noticed by Edmund Halley, who complained of pains in the ears when going too quickly under water. Some divers in German mines noticed below water a slight giddiness and pains in eyes and ears, at a depth of only 30 feet, though many have descended over 130 feet. Professor Rameaux, of Strasbourg, supposes that the blood gases, carbonic acid, nitrogen, and oxygen, are strongly compressed by the pressure upon the lungs and blood vessels, and when this pressure suddenly ceases they will at once expand and act just as air bubbles, which are introduced in the air vessels, namely, they will cause pains, fits, or death. Dr. P. Bert has confirmed this view through experiments which he made with animals. He concludes from them that a diver can be exposed without danger to a pressure of five atmospheres—75 lbs. per inch—or 130 feet of water, while at 230 feet to 280 feet danger becomes imminent; and Dr. A. H. Smith, of New York, examined quite healthy men with the sphygmograph, after they had been exposed one to one and a half hours to 15 to 17 lbs. pressure of air in caissons; he found that the beats had increased from 82 to 84 up to 114 and 126 per minute, that the volume or intensity of the pulse, however, had greatly diminished. The men also perspired freely, which, however, was probably due to the very moist, almost saturated, air of the caissons. Under all circumstances, it is well established as a principle that only perfectly healthy persons should be admitted to work in highly compressed air.—*Engineering.*

## Machinists in the Navy.

Mr. J. O. Adams writes to inform us that an important improvement in the status and emolument of the machinists of the navy has recently been made. They are to be petty officers of a superior grade, and are to have a separate mess, which be under their own control.

The pay has been increased, since January 1, 1874, from

## Latest News from the Sun.

At a recent meeting of the Royal Society, Mr. Lockyer gave the results of his recent studies in relation to the spectrum of the sun.

The previous researches having shown that the former test for the presence or absence of a metal in the sun, namely, the presence or absence of its brightest or strongest lines in the average solar spectrum, was not conclusive, a preliminary search for other metals was determined on; and as a guide, Mr. R. I. Friswell was requested to prepare two lists, showing broadly the chief chemical characteristics of the elements traced and not traced in the sun.

The tables showed that in the main those metals which had been traced formed stable compounds with oxygen.

The author therefore determined to search for the metals which formed strong oxides, but which had not been traced.

The result up to the present time has been that strontium, cadmium, lead, cerium, and uranium, would seem with considerable probability to exist in the solar reversing layer. Should the presence of cerium and uranium be subsequently confirmed, the whole of the iron group of metals will thus have been found in the sun.

Certain metals forming unstable oxides, such as gold, silver, mercury, etc., were sought for and not found. The same was the case when chlorine, bromine, iodine, etc., were sought by means of lines produced in tubes by the jar spark. These elements are distinguishable as a group by forming compounds with hydrogen.

It is observed that certain elementary and compound gases effect their principal absorption in the most refrangible part of the spectrum when they are rare, and that as they become dense the absorption approaches the less refrangible end; that the spectra of compounds are banded or columnar, the bands or columns lying at the red end of the spectrum; that the absorption spectra of chlorine, iodine, bromine, etc., are columnar, and that these are broken up by the spark just as the band spectra of compounds are broken up; and that it is probable that no compounds exist in the sun. The following facts, gathered from the work already accomplished by Rutherford and Secchi, are stated:

There are three classes of stars:

1. Those like Sirius, the brightest (and therefore hottest?) star in the northern sky, their spectra showing only hydrogen lines very thick, and metallic lines exceedingly thin.
2. A class of stars with a spectrum differing only in degree from those of the class of Sirius, and to this our sun belongs.
3. A class of stars with columnar or banded spectra, indicating the formation of compounds.

## Fog Dispeller Wanted.

The City of New York has, on three or four occasions this winter, been enveloped in fogs, occasioning inconvenience to passengers by trains and ferry boats. A suffering correspondent of the New York *Herald* calls out lustily for the invention of some contrivance for the artificial removal of the difficulty. He says:

"Cannot man devise some way of dispelling these fogs, at least in a measure? Man's necessity and ingenuity have reduced almost every known force of Nature to subservience his ends, and can it be that men of science cannot lift the winding sheet from the public convenience on such a morning as this? Can you say if heavy concussions have ever been tried as a means of dispelling fogs? As heavy artillery practice is invariably followed by rain, the theory of which is, I believe, that the concussions serve to discharge the electricity which holds the particles of water apart in the atmosphere, would not the same cause produce the same effect on fogs and give them an honorable discharge on the earth in the shape of rains?"

**ALLOY FOR DENTAL PLATES.**—Edward Conway, of Dayton, Ohio, makes a dental alloy as follows: Bismuth, tin, and lead are purified by separately melting and pouring upon clean marble slabs until all dross is removed, and afterwards melting and pouring into lemon juice. The alloy is composed of platinum, gold, silver, bismuth, tin and lead.

**DR. VEIEL**, a prominent German dermatologist, has lately cured several cases of lupus by scarification, immediately following with cauterization of the diseased parts with a solution of chloride of zinc in alcohol (equal parts). This operation is repeated after 6 to 8 days.

Dim writing nearly effaced by age may be restored by the application of a solution of prussiate of potash in water. Wash the parts with a hair pencil, and the writing will appear if the paper has not been destroyed.

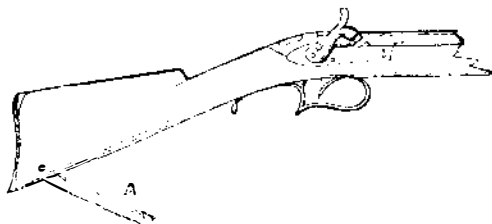
*My dear Sir,*  
*A few words in answer to your interesting letter.*  
*The office of science is not to record possibilities; but to ascertain what nature does, and your own statements show that these monstrosities or sports are not sustained. As far as Darwinism deals with mere arguments of possibilities or even probabilities without a basis of fact it departs from the true scientific method & injures science, as much of the devotees of this new ism have already done. Respectfully yours,*  
*J. H. Parsons Esq.*

FACSIMILE LETTER OF PROFESSOR AGASSIZ ON THE DARWINIAN THEORY.

\$61.50 to \$76.50 per month, which latter amount is still further increased, if the ration be commuted, to \$84, or \$1,008 per annum. The duty imposed is to take charge of the engine and fire room watches, under the direction of the engineer officers. The qualification is to have had some experience in running the engines of steamers. A candidate may enter the service by applying at any recruiting rendezvous, or to the commandant of any navy yard, for examination; or he may be examined by the chief engineer of a vessel going into commission.

## Rifle Hook.

A correspondent of *The Field* describes an old rifle hook as follows: "The blade, A, made of hard brass, folds down into the stock; and when open, keeps so with a snap catch. In case of pursuit by a wounded buffalo, panther, or other dangerous game, you could hook the rifle—I cannot forbear from saying after hooking it yourself—on a branch of some friendly tree, and pull yourself out of danger. The catch was no doubt added to prevent the blade from closing by



the upward movement of the stock against a bough. The rifle I mention must have been seventy or eighty years old, and the workmanship and whole contour of the blade were evidently of coeval date."

When taken in considerable quantities for a long time, alcohol is apt to produce deposit of fat and fatty degeneration of organs, rendering a person not only less capable of work, but liable to succumb to disease.