

identify this grampus with a described species.—H. N. Mosely, *Notes on the Challenger*.

"Cold Catching."

It is noteworthy as a curious yet easily explicable fact, that few persons take cold who are not either self-consciously careful, or fearful, of the consequences of exposure. If the attention be wholly diverted from the existence of danger, by some supreme concentration of thought, as, for example, when escaping from a house on fire or plunging into cold water to save life—the effects of "chill" are seldom experienced. This alone should serve to suggest that the influence exerted by cold falls on the nervous system. The immediate effects of a displacement of blood from the surface, and its determination to the internal organs, are not, as was once supposed, sufficient to produce the sort of congestion that issues in inflammation. If it were so, an inflammatory condition would be the common characteristic of our bodily state. When the vascular system is healthy, and that part of the nervous apparatus by which the caliber of the vessels is controlled performs its proper functions normally, any disturbance of equilibrium in the circulatory system which may have been produced by external cold will be quickly adjusted. It is, therefore, on the state of the nervous system that everything depends, and it is, as we have said, on the nervous system the stress of a "chill" falls. Consciousness is one element in the production of a cold, and when that is wanting the phenomenon is not very likely to ensue.

It is in this way that persons who do not cultivate the fear of cold-catching are not, as a rule, subject to this infliction. This is one reason why the habit of wrapping-up tends to create a morbid susceptibility. The mind by its fear-begetting precaution keeps the nervous system on the alert for impressions of cold, and the centers are, so to say, panic-stricken when even a slight sensation occurs. Cold applied to the surface, even in the form of a gentle current of air somewhat lower in temperature than the skin, will produce the "feeling" of "chill." Conversely a thought will often give rise to the "feeling" of cold applied to the surface—for example, of "cold water running down the back." Many of the sensations of cold or heat which are experienced by the hypersensitive have no external cause. They are purely ideal in their mode of origination, and ideal in fact.—*Lancet*.

Effect of Compression on Solids.

According to the *Revue Scientifique*, Mr. W. Spring, a German chemist, has recently published an interesting memoir, giving the result of a series of experiments undertaken to ascertain the effect of powerful compression on the most diverse bodies.

The substances experimented with were taken in the form of fine powder, and submitted, in a steel mould, to pressures varying from 2,000 to 7,000 atmospheres, or about 7,000 kilogrammes per square centimeter. The facts observed are given in a series of tables, from which we extract some of the more curious results.

Lead filings at a pressure of 2,000 atmospheres were transformed into a solid block, which no longer showed the least grain under the microscope, and the density of which was 11.5, while that of ordinary lead is 11.3 only. At 5,000 atmospheres the lead became like a fluid and ran out through all the interstices of the apparatus.

The powders of zinc and bismuth, at 5,000 to 6,000 atmospheres, gave solid blocks having a crystalline fracture. Toward 6,000 atmospheres zinc and tin appeared to liquefy. Powder of prismatic sulphur was transformed into a solid block of octahedric sulphur. Soft sulphur and octahedric sulphur led to the same result as prismatic. Red phosphorus appeared also to pass into the denser state of black phosphorus.

As may be seen from this, simple bodies undergo chemical transformations by the simple action of pressure. The change of amorphous powders, like that of zinc, into crystalline masses, is a sort of self-combination. Certain hard metals do not lose their pulverulent structure at any pressure.

Binoxide of manganese and the sulphides of zinc and lead in powder weld when compressed, and exhibit the appearance, respectively, of natural crystallized pyrolusite, blende, and galena; while silica and the oxides and sulphides of arsenic undergo no agglomeration.

A certain number of pulverized salts solidify through pressure and become transparent, thus proving the union of the molecules. At high pressures the hydrated salts, such as sulphate of soda, can be completely liquefied. Various organic substances, such as fatty acids, damp cotton, and starch change their appearance, lose their texture, and consequently undergo considerable molecular change.

The Berlin Sanitary Exhibition.

Preparations for the coming exhibition of sanitary engineering and life-saving appliances in Berlin are going on rapidly. The greater part of the exhibits, especially those which will not bear exposure to the weather, are to be put in the main building, while others will find suitable places in the adjoining halls. The arrangement of the exhibits is a new one. Objects relating to each other will be combined in such a manner that the visitors may understand the purpose and application of each article at one glance. One part of the building represents a battlefield. On the wall is

a picture of a battle, and in front of it are set up figures representing ambulances, soldiers, physicians, and attendants, and instruments and apparatus of all kinds relating to the attendance and transportation of wounded soldiers. In another part a public bath in the ancient style is represented with the necessary equipments, to show what progress in the care of public health was made in ancient times as compared with modern. A part of the ground is dug out so as to form a pond, in which diving and other methods of working in and under water are shown with the apparatus on exhibition. As in the case of the Industrial Exhibition of 1879, some of the large arched halls of the city railways are used as exhibition rooms. Some of them will be transformed into mines, to be lighted partly by luminous paint, partly by mine lamps, and partly by electric light, and provided with safety appliances and apparatus for protection against accidents and the like. The town committee of Hamburg intends to exhibit a large model of a steamer, showing a cross section of the same, and fitted up in such a manner that the visitors may enter all parts of the vessel to get a clear and complete notion of the construction of such a vessel with regard to its sanitary contrivances, comfort, and life-saving and preserving apparatus. This new method of arranging the exhibits according to their purposes, so as to show them in the place of their application, will doubtless augment the general interest of the exhibition.

A Panic-Stricken Company.

A new terror has come upon the stockholders in the Keely Motor Company. It isn't the thought that Mr. Keely is a fraud. That is an old idea, and too hopeless for the gentlemen who paid over their money in return for motor stock, knowing a good thing when they saw it, to permit it to form a prominent subject of discussion at their interesting and bewildering meetings. It is not the contemplation of what is, that on the surface troubles the minds of these gentlemen, but a dread of what may be hereafter. What the matter really is we learn partially from the annual report of Mr. Enos T. Throop, of New York, a director in the company.

First, as to the financial condition of the enterprise. In return for the money spent in the past, of course these gentlemen have their experience, which is no doubt very valuable. The present status looks encouraging. The liabilities are only \$1,360.75. The resources are 12,000 shares of Keely motor stock, 3,000 shares of the Keely Motor Company's Mexico stock, and cash, \$19.48. But while this condition of affairs seems satisfactory for the present, it does not guarantee the future; and, indeed, over this future a dark cloud is hovering. This great invention of Mr. Keely's is not absolutely complete. There is no immediate prospect of its being completed. There are no patents for it, and nobody but Mr. Keely pretends to understand it. He is still groping for the evasive contrivance that will set everything working according to the original expectation; and his mind is scattered over so many inventions that this one cannot receive his constant attention. With these facts before them, the stockholders demand of Mr. Keely either to get out his patents or to explain his invention to some other person. What drives them to this course is shown in the following extract:

"He has repeatedly said that he shall impart this information, and that so soon as he shall bring them to perfection or to that stage determined upon in his own mind. This portion might be conceded by us if a limit could be assigned to his inventive genius; but, considering the nature of the agent he is working with and the grave possibilities of the future, we fear that death or even a worse calamity may overtake him."

Of course, if Mr. Keely dies, all the beautiful machinery required in his experiments, and the well-engraved certificates of stock, will be turned into old iron and waste paper. But the report hints at a worse calamity than death. What can it be? Just listen:

"It is an admitted fact that a mind wholly absorbed in the consideration of one subject becomes weakened. If a fresh mind is brought to his aid, many things which now seem difficult will be found quite easy of solution."

This is it. Mr. Keely's labors may be too much for him. His friends are afraid he will go crazy, and this would be just as bad for his backers as his death. We don't pretend to be expert in such matters, and we never saw Mr. Keely or any of his family; but we hasten to give our opinion, judging from what observations we have made from time to time, about the possibility of Mr. Keely's becoming insane. The machine he originally proposed to construct was a very wonderful and unheard-of machine, but that does not conclusively prove him a lunatic. He may have been a little jocular when he spoke of it, but not necessarily insane. Moreover, quite apart from the machine, Mr. Keely's conduct from the very beginning exhibits no trace of insanity. We have heard of inventors of so enthusiastic a turn and so engrossed in their inventions as to border on insanity; but it has always been shown by letting the control of a great invention gradually slip away from them, and seeing it profitable to some one else and themselves starving beggars. This does not seem to be the case with Mr. Keely's invention. He has enjoyed a regular salary from the company since it was started, and large sums of money have been placed in his hands, in return for which he has from time to time amused his supporters with curious mechanical entertainments. We cannot say that this shows any evi-

dence of insanity; nor do we believe that he is altogether an idiot when he hesitates to give away the secret of his unfinished invention to anybody else. There are fools in the world, no doubt; there may be some in the Keely Motor Company; but Mr. Keely is not one of them.—*N. Y. Sun*.

Correspondence.

The Vermont Panther.

To the Editor of the *Scientific American*:

It seems to me not improper that some mention should be made in your columns of the remarkable specimen of puma (*Felis concolor*, L.) which was recently killed in the town of Barnard, Vermont.

We are not surprised at the stories related by our forefathers of hunting wolves, bears, panthers, and other large animals on spots long since thickly settled by man, nor at the strange experiences of the woodsman when his ax was first heard to ring in the primeval forest.

It is not an uncommon thing, indeed, now, for such animals as deer, catamounts, or bears to be shot or trapped in many towns on the northern border of New England; but when a full grown puma, one of the most savage of wild animals on our continent, is taken prowling about the outskirts of a town, in a State which is settled to such an extent as Vermont, we are enabled to realize the condition of the wilderness as it once was, and the nature of those animals with which it was denized.

The circumstances of this remarkable hunt are as follows:

Some boys, who lived in Barnard, went out after partridges on Thanksgiving Day, November 24, 1881. They soon discovered the fresh tracks of some large animal, and on following a short distance crossed their own path. Being frightened at this circumstance, and also from catching a glimpse of the animal, they hastened back to the house of a neighbor, who soon accompanied them, armed with a shotgun, together with his son, who carried a rifle.

They presently sighted their game, which they chased to a thicket, where it was dislodged several times, but finally shot.

On dragging the animal out, what was at first thought to be a bear proved to be a female panther of the largest size, measuring 7½ feet from tip to tip, and weighing nearly 200 pounds.

It would seem strange at first that the animal was not more savage, that he did not charge his pursuers and kill them at once. This may, however, be partially accounted for from the fact, as afterward appeared, that it had made its supper on two sheep in Pomfret only the night before.

This is the second or third of the species killed in the State since the beginning of the century, and in all probability it will be the last.

The animal was in fine condition, being in its new fur, and showing no signs of having been previously trapped or wounded.

The upper right canine was truncated at about the middle, but this might have been done in a skirmish when the puma was young.

In general the color of the upper parts was tawny-yellow, with a darker wash of the same along the dorsal line, on the tip of the tail, the ears, and face. The whole animal presents in a striking and exaggerated manner the form and features of the ordinary domestic cat. The tail is straight and larger in diameter at the base, the neck short, the ears erect and pocketed. The dentition is precisely similar, the canines being conical, and rising an inch or more from the jaws.

The paws are seven inches wide when the fingers are spread, and conceal a very formidable set of claws.

This panther is supposed to have made the town and vicinity where it was taken its home for seven or eight years, and on several occasions has been seen or heard from.

One hundred and thirty sheep have probably fallen victims to its rapacious maw, as the town records would indicate.

The specimen was embalmed and exhibited in several towns in the State, and I am told a thousand dollars have been offered for its skin.

When mounted it will probably be placed in the State museum at Montpelier.

F. H. H.

Burlington, Vt., December 14, 1881.

A Question for Mr. Lawson to Answer.

To the Editor of the *Scientific American*:

Some fifteen years ago I sent to the *SCIENTIFIC AMERICAN* an account of what, according to the theory promulgated in No. 25, vol. xlv., should have produced a water explosion by its sudden release under steam pressure.

The facts in that case were: that a locomotive with two 8 x 12 cylinders, usually running with steam at 80 to 100 pounds pressure, was going through the woods on a road-way built for logging purposes, and ran under a leaning tree which had fallen since the last trip before made, and the smokestack, safety valve, etc., were knocked clean off. The water spouted forty feet in the air and the boiler was emptied in short order, but there was no explosion. Now, if the "water explosion" theory is correct, why was not there an explosion in this case?

E. H. Rood.