Correspondence.

Military Uses of Dogs.

To the Editor of the Scientific American:

In your issue of SCIENTIFIC AMERICAN of July 16, I found a notice on the military dogs now to be used with German hunter battalions (Jaeger Battalione, which, each 1,000 men strong, are recruited only from professional foresters and gamekeepers). I see that there have been given some exhibitions in honor of Colonel Von der Goltz Pasha.

Now, that is all right so far as theory is concerned, but as a patriotic citizen of this glorious country, I think you will feel pleased if you hear of an episode that will put us ahead of them by several pegs, namely, by successful practice.

In 1874 or 1875 a detail of soldiers, to be gone for several days, was sent from Fort Sill, Indian Territory, down the Cache Creek, to cut timber for some building purposes. The party was the next day jumped on by Kiowa and Comanche Indians, and completely surrounded. After several charges the Indians gave the soldiers more rest, but kept them so close that nobody dared to steal through to bring help from Fort Sill, and so matters stood for several days. As is usually the case in those kind of expeditions, there were several dogs with the party, mostly of the "yaller cur" kind. One of the soldiers had the idea of fastening a tin can, with a message by the officer in charge, telling how matters stood, to the tail of one of the dogs and chasing him home. This was done in the evening, and as the dog neared the Indians they fired at him, but seeing the tin can pounding the air, they thought it great fun, and yelled and chased the poor dog still faster. The animal arrived at the fort nearly dead, and went to the company quarters. Luckily a kind-hearted soldier tried to relieve the poor brute. In so doing he noticed the slip of paper in the tin can, and raised the alarm. In a short time the commanding officer was notified, and several companies on horseback went to the rescue of the beleaguered party. The Indians saw them coming, and fled. Further details of that fight and rescue, which is highly interesting, are told in a report to the Headquarters, Department of the Missouri, General Jno. Pope being then in command.

At that time I was chief draughtsman and assistant to the chief engineer of the department. This case was much talked of, but it was recommended to carry the dispatch on the dog's neck, and the tin can on the tail for motive power only. ADO HUNNIUS.

Leavenworth, Kan.

Solid Bromine.

Under this name Franke has introduced a preparation of bromine which will find many uses among chemists and manufacturers as a convenient source of bromine. It consists of sticks of kieselguhr made in the solid form by fritting the material with a small quantity of alkali, and then saturating the porous substance obtained with bromine. The thinner sticks (7 mm. diameter) contain about one grain of bromine in a length of 1 cm., while the larger ones (15 mm. diameter) hold nearly 3 grammes. Bromine can be used in a great many cases with advantage as a substitute for chlorine, and this preparation will be found not only cheaper in laboratory experiments, but also time saving, as by its employment is avoided the labor involved in setting up a chlorine-generating apparatus. For the decomposition of sulphur ores, such as copper pyrites and fahlore, its use possesses very decided advantages over the older methods. The sticks should be placed in a combustion tube closed at one end, and holding a boat containing a weighed portion (1 grm.) of the mineral, and connected with two U tubes or receivers filled with hydrochloric acid. On heating the sticks bromine is expelled, and when all the air has been replaced by the bromine, the boat containing the ore is heated. Arsenic, sulphur, mercury, and a portion of the iron present will pass over as bromine compounds with the excess of bromine to the receivers, while the remaining metals will remain in the boat as bromides. Excess of bromine can be prevented from passing into the air of the room by connecting the end receiver with a bottle containing wood shavings moistened with alcohol, or by leading the exit tube into the open air or draught cupboard. When the operation is completed, or in about half an hour, the tube is cooled and then cut between the boat and the bromine sticks. The bromides are then washed into a large vessel and filtered, when the soluble and volatile ones will be in the filtrate with excess of bromine, which is subsequently removed by gently warming the solution. The insoluble bromides on the filter can be made and analyzed in the ordinary way. A mixture of metallic bromides and bromates is also being manufactured as a source of bromine. The chief use of this latter preparation is for bleaching and disinfecting purposes. Some mineral acid has, of course, to be added before any of the bromine is liberated, so that the mixture can be kept for any length of time without any disagreeable results from the escape of free bromine taking place.—*Industries.*

Natural History Notes.

Multiplication of Aphides.—Perhaps no more striking illustration of the wonderful reproductive power of certain insects could be given than that contained in a work recently published by Theodore Wood, an English entomologist. It is assumed, first, that 100 aphides weigh no more, collectively, than a single grain; and, second, that only a very stout man can weigh as much as 2,000,000 grains. Then it is found that if multiplication were entirely unchecked, the tenth brood alone of the descendants of a single aphis would be equivalent, in point of actual matter, to more than 500,000,000 very stout men, or one-third of the human population of the globe, supposing each person to weigh 280 pounds.

Optical Properties of Mosses.—Recent observations have shown that the peristome of some mosses possess curious optical properties. According to Mr. M. J. Aumann (*Annals and Mag. Nat. His.*), sometimes the outer layer of the peristome and sometimes the inner layer rotates the plane of polarization, and exhibits, when a thin plate of mica or selenite is interposed, very brilliant colors, varying with the position of the two nicols relatively to each other. In the Grimmiaceæ and Dieranaceæ this action is feeble; in the Pottiaceæ and Weissieæ, almost *nil;* and strong in Mniaceæ and Hypuaceæ. There exists a curious relation between these optical properties and the amount of tannin contained in these membranes, the endostome of *Camptothecium lutescens* affording a particularly good illustration of this fact.

The Alleged Suicide of Scorpions.—Professor A. G. Bourne has made a number of experiments on three species of scorpions found at Madras, with the object of determining whether the popular notion that scorpions can commit suicide is true. He finds that it is undoubtedly physically impossible for a scorpion to sting itself in a vulnerable place, and when one is placed in very unpleasant circumstances, it not unfrequently lashes its tail about and causes actual penetration of the sting. But the poison of a scorpion is quite powerless to kill the same individnal or another of the same or even of another species. Two scorpions, when fighting, repeatedly sting one another with little, if any, effect, the stronger killing the weaker by tearing it to pieces. The poison may be pressed out of the sting with the fingers or a pair of forceps, when it is found to be a milky white fluid with a very pungent smell resembling that of formic acid.

Strength of Snails.—Mr. E. Sanford has found that a snail weighing one-quarter of an ounce can drag up vertically a load of two ounces and a quarter. Another snail one-third of an ounce in weight carried horizontally a weight of seventeen ounces.

Prehistoric Plants.—In his address to the Biological Section of the British Association, Mr. Carruthers described the wonderful state of preservation of the flowers obtained by Dr. Schweinfurth from mummy wrappings in Egypt, even so evanescent colors as the violet of the larkspur and knapweed and the scarlet of the poppy, the chlorophyl remains in the leaves, and the sugar in the pulp of the raisins being preserved. The remains of 59 species of flowering plants have been identified.

In stratified clays resting upon the bowlder clay in the valley of the Nile have been found the remains of 2 species of desmids, 31 of diatoms, and 9 of flowering plants, all belonging to the existing agrarian flora. In another locality, 51 species of mosses have been determined with certainty, a considerable portion being alpine plants, one of them no longer found in Britain. These beds contain also 7 species of seaweeds now found in our seas.

The sedimentary deposits at Cromer, of later date than the Pliocene strata, are the earliest in which remains of plants have been found that can certainly be identified with species existing at the present time. Some of the plant remains from Tertiary strata have been referred to still living species, but, as Mr. Carruthers thinks, without sufficient evidence.

Colored Leaves.—From an examination of the anatomical structure of a large number of colored and variegated leaves, and of the physiological properties of their pigments, Dr. C. Hassack concludes that the white color in variegated leaves results from the absence of pigment in the tissues and the presence of numerous interstices filled with air between the cells. The reflection of light from the numerous air bubbles in them causes the parts of the leaf which are really colorless to appear white. In leaves with yellow variegation, the normal chlorophyl is replaced by xanthophyl, which colors light yellow the protoplasm collected into irregular parietal lumps, and occurs also in the form of minute granules. The gray green which often appears in colored leaves is caused by white layers of tissue, which lie above the green parts of the cells, and partially obscure their color. Silver white spots on leaves with a metallic shimmer are the result of an entire reflection of the light from large shallow air cavities, which stretch between the colorless and the green layers of tissue in a direction parallel with the surface of the leaf. Red and brown tints are caused by the presence of anthocyan dissolved in the cell sap, partly in the epidermis only, partly in the parenchyma only, and partly in both tissues. The various tints depend upon the intensity of the color and the concurrence of red cells with green, yellow, or white portions of the tissue. A papillose structure of the epidermis, peculiar trichanes, or, in a few cases, a wavy structure of the entire leaf, is the cause of the velvety sheen of many leaves; the apices of the papillæ have the effect of bright points on a dark ground, the light being reflected from them in one direction only, while their lateral surfaces scatter light.

While albinism is the result of degeneracy, Dr. Hassack regards a red color as a direct consequence of light, and as a contrivance to protect leaves from the destructive action of too strong light on the chlorophyl, and too strong respiration; it is hence found especially in young leaves, or in the leaves of those plants which grow in very high altitudes or in very cold ones.

Genetic Affinity of Algæ.—In a paper read at the Linnean Society on March 3, on "The Genetic Affinities of the Algæ," Mr. A. W. Bennett suggested that in many of the groups difficult to classify retrogression had apparently taken place in the form of suppression of development of either the vegetative or reproductive organs, the organs which predominated leaving the others degenerate. Thus the desmids are considered to be a degenerate group, which should not be classed as hitherto with the diatoms. The views expressed in the paper are, however, likely to be critically discussed by Continental cryptogamists.

Probably the Oldest Man Now Living.

James James, a negro, and citizen of the United States, who resides at Santa Rosa, Mexico, is probably the oldest man on earth. He was born near Dorchester, S. C., in 1752, and while an infant was removed to Medway River, Ga., in the same year that Franklin brought down electricity from the thunder clouds. In 1772 there was quite an immigration into South Carolina, and his master, James James (from whom he takes his name), moved near Charleston, S. C., in company with a number of his neighbors. On June 4, 1776, when twenty-four years of age, a large British fleet, under Sir Peter Parker, arrived off Charleston. The citizens had erected a palmetto wood fort on Sullivan's Island, with twenty-six guns, manned by 500 troops under Colonel Moultrie, and on June 28 the British made an attack by land and water, and were compelled to withdraw after a ten hours' conflict. It was during this fight that Sergeant Jasper distinguished himself by replacing the flag, which had been shot away upon the bastion, on a new staff. His master, James James, manned one of the guns in this fight, and Jim, the subject of this sketch, and four other slaves were employed around the fort as general laborers. Jim followed his master throughout the war, and was with General Moultrie at Port Royal, S. C., February 3, 1779, when Moultrie defeated the combined British forces of Prevost and Campbell. His master was surrendered by General Lincoln at Charleston, S. C., on February 12, 1780, to the British forces, and this ends Jim's military career.

He remembers of the rejoicing in 1792 throughout the country in consequence of Washington's election to the presidency, he then being forty years of age. In this year his first master died, age about sixty years. Jim then became the property of "Marse Henry" (Henry James), owning large estates and about thirty slaves, near Charleston. On account of having raised "Marse Henry," Jim was a special favorite with his master and was allowed to do as he chose. His second master, Henry, died in 1815, about fifty-five years of age, and Jim, now sixty-three years of age, became the property of James James, Henry's second son. In 1833 the railroad from Charleston to Savannah was completed, then the longest railroad in the world, and Jim, with his master, took a trip over the road, and was shown special favors on account of his age, now eighty-one. James James was ten years of age at his father's death, and when he became of age inherited large estates, slaves, etc., among whom were "old Uncle Jim" and his family. James James lived in South Carolina until 1855, when he moved to Texas with all his slaves. James desired that his slaves should be free at his death, and in 1858 moved into Mexico, so that they could be free before his death. James returned to the United States and died in Texas, and in 1865, after there were no longer slaves in the United States, Uncle Jim's children and grandchildren returned to the United States. Five years ago, at the age of 130, Jim could do light chores, but subsisted mostly by contributions from the citizens; but for the past two years, not being able to walk, he remains for the most part in his little jacal, his wants being supplied by generous neighbors. The rheumatism in his legs prevents him from walking, but yet he has sufficient strength in his arms to drag himself a short distance—fifty yards or more—and readily took a position on the outside of his cabin to enable the *Globe-Democrat* correspondent to make his photograph.—*Laredo, Tex., letter to the St. Louis Globe-Democrat.*