

time to time with spirits of turpentine, all painted surfaces were repainted, and Dr. Marfan recommended that the floor should be swept in the evening after the departure of the employees, and that the windows should be left open all night.

Dr. Vallin recommends in place of these measures a mixture of equal parts of coal-tar and spirits of turpentine, or of paraffine dissolved in warm petroleum, and, in place of the sweeping, the removal of the dust by sponges, or cloths moistened with an antiseptic solution.

Tissue Metabolism in Cancer.

Dr. F. Müller has made some careful comparative observations upon the urine in cases of cancer and other wasting diseases, and in simple starvation. He finds, according to the London *Lancet*, that in the cancerous the excretion of nitrogen far exceeds the amount ingested, and infers that this excess must in consequence be derived from the disintegration of the albuminoids of the body. However, in two out of seven cases this loss was not greater than occurred in other individuals similarly insufficiently nourished. The chlorides were, on the other hand, notably diminished,—a fact, he thinks, pointing to the source of the excreted nitrogen; viz., from the organ albumen, and not from the circulating albumen. Obviously, however, many diseases share, with carcinoma, in this disintegrating process, as Müller showed to be the case in chronic febrile affections, especially severe forms of malaria, in leukæmia, and pernicious anæmia. Previous observers do not coincide in their statements on this head as regards leukæmia. Voit and Pettenkofer found no marked evidence of increased metabolism in this affection, and Fleischer and Penzoldt concurred in this so far as regards mild cases. But in severe cases the last-named find the urea to be increased both absolutely and relatively. Sticker and Klemperer arrived at the same conclusion. Respecting pernicious anæmia, there is a concurrence of testimony in support of increased nitrogenous excretion. Reverting to cancer, this evidence, Müller thinks, goes to prove that malignant disease excites the formation of metabolic products which are poisonous to the organism. He points out that cachexia develops in the cases of malignant growths, no matter how limited, and without their involving any important organ; whereas a non-malignant tumor may attain great dimensions without affecting the excretion of urea. At the same time no such poison or ferment destructive of albumen can be isolated from cancerous tumors, although the fact pointed out by Feltz, that the urine of the cancerous is more toxic to animals than that of healthy individuals, is, with other facts, highly suggestive of that view.

Kola-Nut for Seasickness.

Dr. C. W. Hamilton of the British Navy writes to the *British Medical Journal* of May 10, 1890, that he has found the seed of the kola (*Sterculia acuminata*) a most successful remedy in seasickness. From half to one dram of the seed was slowly chewed, and in about half an hour the distressing symptoms of the malady gradually disappeared. The writer had never found any drug to act as well as this, and believes that further trials will prove it to be an effectual remedy for seasickness.

ELECTRICAL SCIENCE.

Electric Welding and Ice-Machines.

THE ice-famine is proving a bonanza for the Thomson Electric Welding Company, says the *Boston Advertiser*. There is a great demand at present for pipe-welding machines, with which to make the long coils of pipe for artificial-ice machines, for brewery coils, for sugar-refinery and general refrigerating purposes. The pipes originally come in lengths of from eighteen to twenty feet. The coils are frequently six hundred to seven hundred feet long. By old systems the pipe is welded together by a slow and laborious process, requiring fifteen minutes for each weld, two blacksmiths and a dozen helpers, and a large space, each pipe being lifted from the forge to the anvil, and a mandril inserted. There is often a serious loss of ammonia as a consequence of imperfect welding. By the electric process the welds can be made so ho-

mogeneous that there is no chance for ammonia to escape. The length of time required is two minutes for each weld, and all the help required is a man and a boy. The cost of the old process is fifteen cents each; by the new, two cents. As the coil is bent after each weld, the work can be done in a very small space. The managers of the Welding Company consider this, next to shell-welding, the most important industry which has sprung up as a result of the welding invention.

Atmospheric Electricity in the Tropics.

In order to investigate the relations of atmospheric electricity to the moisture of the air within certain limits, Herr F. Exner has made observations of the fall of atmospheric potential in countries with high relative moisture, particularly in the Indian Ocean between Aden and Bombay, in Bombay itself, and in Ceylon, both on the coast and in the interior. According to *The Electrical Engineer* of July 9, the measurements were made with transportable apparatus invented by Herr Exner. All the values of the fall of potential were positive. Near the coast the finely divided spray arising from the breaking of the waves exerted an increased action on the fall of potential. On the other hand, measurements made in Cairo and the vicinity showed that there the dust of the air exerted a lessening influence on the fall of potential, which, with a strong wind, was so marked that the sign of the fall of potential became negative.

Storms and Electric Wires.

It has for some years been the practice at the Berlin post-office, says the London *Electrical Review*, for the employees to make a note of storms and magnetic disturbances, direction of storms, length, etc.; and the result has demonstrated that underground wires, without being entirely free from the influence of magnetic storms, are much less liable to disturbance than overhead ones, and, on the other hand, that accidents from lightning are much less serious in those towns where the overhead system is in vogue.

LETTERS TO THE EDITOR.

. Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

The editor will be glad to publish any queries consonant with the character of the journal.

On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

A Stony Meteorite from Washington County, Kan.

HAVING seen press despatches from Washington, the county seat of Washington County, Kan., announcing the fall of an aerolite near that town on Wednesday, June 25, I visited that county at the earliest possible opportunity, for the purpose of ascertaining the facts. I found them to be as follows, and verified by a multitude of witnesses: At about ten minutes before one o'clock on the afternoon of June 25, the sky being free from clouds, a strange noise was heard by thousands of people residing in the counties of Washington, Republic, Cloud, Clay, Riley, Pottawatomie, and Marshall, in Kansas, and in the counties of Thayer, Jefferson, and Gage, in Nebraska. The same noise was heard by hundreds of people in counties more distant than those mentioned.

The descriptions given me of the character of this strange sound were exceedingly various. Mr. E. F. Woodruff of Clifton, fully twenty-five miles from the place where the meteor struck the ground, stated to me, that while standing on the front porch of his hotel after dinner, a few minutes before one o'clock, his attention was attracted by a rumbling sound like thunder, which began gently, and increased in power to a maximum, rising even above the din of a Missouri Pacific Railroad train which passed within a few rods during the continuance of the phenomenon. The sound appeared to him to come from the zenith, and to continue for two or three minutes, gradually fading away, and being at no time of an explosive character.

Mr. John Yates of Grant Township, more than fifty miles from Washington, on the contrary, heard the sound of the flying me-

teor, and described it as like the report of a hundred-pound cannon, which shook his house, and jarred the windows. He at first supposed the disturbance to be produced by the explosion of a boiler at Gann's elevator, in the neighboring town of Riley. Mr. Sprengle, father of L. J. Sprengle of the *Washington Republican*, not only heard the meteor, but looking toward the zenith, shading his eyes from the glare of the sun, saw just below that luminary a swiftly moving mass of waving mist, followed by a double trail of bluish smoke.

This aerolite was seen by many observers at a much greater distance from the place where it fell. Mr. D. C. Ruth of Halstead, Harvey County, Kan. (a hundred and thirty miles distant in a direction slightly west of south), saw a large fire-ball moving through the atmosphere at a few minutes before one o'clock on June 25. It was also seen at Topeka (eighty-seven miles south-east) by a neighbor of H. R. Hilton, Esq. It was reported by the newspapers as having been both heard and seen at Atchison (a hundred and two miles distant) and at Leavenworth (a hundred and fifteen miles distant), the last two places being in a direction east-south-east from Washington. A note received from C. W. Marston, Esq., of Cedar Junction (a hundred and thirty miles south-east from Washington) makes the following statements: "An aerolite passed in sight of this place on Wednesday, June 25, at about 1 P.M. Of the several who saw it, Mrs. John D. Randall says of it, 'It was a ball of fire as large as a table. It had a trail like a comet, and it wobbled like a kite.'"

At Beatrice, in Nebraska, forty miles north-east of Washington, it was reported as a brilliant meteor passing over the city from north to south, leaving a distinct fiery trail behind. The fact that at places to the north of the point of collision with the earth the meteor appeared to be moving toward the south, while at places to the south it appeared to be moving toward the north, corroborates the testimony given by the nearly perpendicular sides of the hole it made in the ground, that it passed through the atmosphere from the vicinity of the zenith.

The meteor reached the ground, and buried itself out of sight, four feet deep, below the eighteen inches of upper alluvium in the underlying shaly clay or "gumbo." This spot is located three miles and a half north of Washington, in Farmington Township, about a hundred yards from the north and south road, near the south-west corner of the north-west quarter of the south-west quarter of Section 13, Township 2, Range 3, east of the sixth principal meridian. The farm belongs to Mrs. Lydia V. Kelsey of Iowa, and was rented by Mr. J. H. January, who was on that day breaking the prairie sod. The noon hour had not quite expired, and Mr. January was underneath his wagon making some repairs, when he heard the sound of the approaching meteor, and came out to ascertain the cause of the disturbance. He had hardly gained the erect position, when the meteor struck the ground only a few rods distant, throwing up the earth to a height of forty feet into the air, and outwards for about twenty-five feet. It was also seen to strike the earth by Miss Guild, a teacher, who was returning to her home in the country after her forenoon's attendance at the Washington County Normal Institute, and was at the instant driving her horse and cart along the north and south road, only a hundred yards distant. As soon as her frightened and trembling horse had recovered from the shock, Miss Guild drove to the spot, which she reached at the same moment with Mr. January. As soon as Mr. January had calmed his frightened horses, he began to dig for the aerolite; and with the help of a neighbor, Mr. J. D. Foster, and three other men, he reached the upper surface of the stone in one hour, but it required three hours to remove the mass from its bed, it was so firmly held in place by the compressed "gumbo." The stone was not hot when reached, which may be explained by the fact that it seems to have passed through the minimum amount of air from a direction but a few degrees south of the zenith. It was covered, however, by the usual burned crust. The stone was found to have been cracked, doubtless by the force of collision acting upon a body already under the disrupting strain of unequal temperatures. The entire mass weighed a hundred and eighty-eight pounds, and was divided by this crack into two portions, weighing respectively a hundred and forty-four and forty-four pounds. The smaller

mass was soon subjected to a process of sledge-hammering by the hundreds of people who almost immediately visited the spot. Nearly every citizen of Washington has in his pocket a small fragment of the stone. The portion remaining, weighing a hundred and forty-four pounds, is somewhat wedge-shaped, in dimensions nineteen by seventeen inches, by eight inches at the base. The writer obtained from Mr. J. D. Foster for analysis a fragment weighing two pounds and a quarter. In color the stone is dark slate, resembling a compact trap-rock. An analysis has been made by Mr. E. E. Slosson, assistant in our chemical department, whose preliminary report is as follows:—

"The stone is of a gray color, and in texture resembles porphyry. A few metallic grains are all that can be distinguished with the naked eye. Under a microscope by chemical treatment the following minerals can be detected:

"1. A white crystalline silicate, insoluble, forming about half the mass of the whole; probably enstatite or a similar bisilicate of the pyroxene group.

"2. A black translucent crystalline silicate intermingled with the above, though less in amount. It is decomposed by *aqua regia*, and contains iron; probably a uni-silicate of the olivine type. These two minerals are in some fragments arranged in alternate microscopic layers of equal thickness.

"3. Malleable nickeliferous iron in small irregular masses, intimately mixed with troilite and the silicates.

"4. Troilite or pyrrhotite in microscopic particles disseminated through the whole rock, estimated from sulphur to be about 10 per cent.

"5. Chromite, distinguishable as small black magnetic crystals in the residue after treatment with the acids.

"6. A few scattered silicious crystals, yellow and red; too small to determine, probably olivine.

"The following is an approximate analysis of a small fragment: metallic iron (with part of the iron in silicates), 14.953 per cent; troilite, 10; soluble silicates (olivine), 25.147; insoluble silicates (enstatite), 49.9; nickel and chromite, undetermined; specific gravity of fragment weighing two pounds and a half, 3.48, water at 25° C."

The hundred and forty-four pound mass has been bought by the writer and Professor F. W. Cragin of Washburn College, Topeka, in equal partnership, for the benefit of the museums of their respective institutions.

F. H. SNOW.

University of Kansas, Lawrence, Kan., July 7.

Another Meteorite from Kiowa County, Kan.

SINCE my communication in *Science* of May 9, in reference to the Kiowa County (Kansas) meteorites, I have again visited the locality, and obtained a 218½-pound pallasite. This is not a new "find," but is one which was first discovered upon the farm of Mr. James Evans more than a year ago. The location may be seen by consulting the map illustrating Mr. Kunz's article in *Science* of June 13. Only about one square foot of the surface of this meteorite, just level with the ground, was exposed to view, and it thus easily escaped subsequent observation on the unploughed, grassy prairie. The dimensions are 20½ by 16½ inches, by 10½ inches at base. The shape is that of an irregular triangular pyramid, and it stands easily upon its base. The specimen, not having been exposed to the weather and the dangers of rough usage, as were the other members of this group, presents fine clusters of olivine crystals in several cavities upon two of its faces. There are eight cavities on one face. Some of the cavities are four inches in diameter and two inches deep. Nearly all the cavities contain fine crystals of yellow olivine and of chromite. Some of the former are $\frac{1}{8}$ of an inch in diameter, and so perfect that the angles can readily be measured. This specimen is also unique in that the crystals of chromite are so large and so prominent. The chromite has a fine lustre, gives a dark-brown powder, and scratches glass.

Much of the olivine is black and glassy, with a conchoidal fracture. It shades imperceptibly into the honey-yellow and colorless varieties. The light variety yields a light-brown powder, and is very brittle. Its fusibility is about five.