

THE Drapers' Company has granted £500, to be paid in five annual instalments of £100, to the Middlesex Hospital cancer research fund to assist the governors in maintaining the investigations which are being pursued into the cause of cancer and its cure.

UNIVERSITY AND EDUCATIONAL NEWS

THE legislature of Vermont has acted favorably upon the proposition to establish at Middlebury College a department of pedagogy for the training of high school teachers. The bill, which has been signed by Governor Prouty, carries an annual appropriation of \$6,000.

RICHMOND COLLEGE, at Richmond, Va., controlled by the Baptists of that state, has collected \$350,000, required to secure a conditional gift of \$150,000 from Mr. John D. Rockefeller.

EIGHTEEN months have now elapsed since the Chancellor's Fund for the further endowment of Oxford University was inaugurated. The committee then appointed under the chairmanship of Lord Curzon to organize the appeal has so far been successful in its efforts to raise the required sum of £250,000 that it has now received gifts or promises of a total value of more than £133,000. Recent subscribers have been: Sir Julius Wernher, £2,000; Mrs. Craig-Sellar, £1,000; Mr. Otto Beit, £500; the Merchant Tailors' Company, £500; Mr. J. Hamilton Beattie, £300; Mr. Gerard Craig-Sellar, £300; the Skinners' Company, £250. Mr. Henry Phipps has added £200 to his original gift of £1,000, and Lord Brassey has given £200 for the School of Geography in addition to the £1,000 promised by him for the School of Engineering.

THE board of managers of Haverford College and the faculty held recently their annual joint meeting. The topics for discussion were the advisability of increasing the number of dormitories, and as to whether it would be well to limit the number of students by raising the entrance requirement.

THE Central Association of Science and Mathematics Teachers, at its meeting held in Chicago on November 28, unanimously passed

the following resolutions as embodying the conclusions of the association with regard to two important matters of interest to all teachers of science:

Resolved, That we believe in the recognition and inclusion within our courses of the practical and applied aspects that make possible an appreciable significance and belief in the worthwhileness in practical life of the various subjects studied; and

Resolved, That we believe that the formulation of secondary school courses should be made entirely from the point of view of the needs of the majority of secondary school pupils; and, further, that any course that is best for the majority of secondary school pupils is best for college entrance.

PROFESSOR WALTER S. GRAFFAM, of Howard University, Washington, D. C., has accepted the instructorship in mechanic arts at Smith's Agricultural School and Northampton School of Technology. He will be placed at the head of the mechanic arts department, and will take up his new duties September 1, 1909.

DEANS of faculties at the University of London have been elected as follows: For medicine, Professor S. H. C. Martin, F.R.S.; for science, Professor J. M. Thomson, F.R.S.; for engineering, Professor W. E. Dalby.

DISCUSSION AND CORRESPONDENCE

AN ELECTRIC STORM ON THE WASHAKIE NEEDLES

To the issue of *SCIENCE* of November 6, 1908, Professor J. E. Church, Jr., contributes an article entitled, "Electric Disturbances and Perils on Mountain Tops." The exceedingly interesting phenomena there described recall a personal experience, vivid and unpleasant, and of like character, but differing enough in detail to render it possibly worthy of being recorded. It has remained until now unpublished, because I feared that as it came from one who had no pretensions to scientific education, it might not meet with credence. What follows happened near the top of some mountains in Wyoming, to the southeast of the Yellowstone Park, generally known on local maps as the Washakie Needles. Visible from a long distance, these sharp gray peaks are somewhat higher than the surrounding range, and two well-known streams, Owl Creek

and Grey Bull, flow from their eastern side and at length join the Big Horn River. The height of these mountains I do not know, but as they rise well above timber line, I think it likely that they are near 10,000 feet high.

Instead of rewriting the story, I transcribe directly from my journal (written on return to camp) such passages as refer to the electric occurrences which I observed during the afternoon of Thursday, August 30, 1888.

We went up toward the head of the valley, watching the big thunder cloud that we trusted was traveling parallel with our course. One last sheep moved away out of sight, in front, and it became very much colder. Two or three valleys off to the right, long black streamers let down from the cloud, waving mistily just over the pines, and if you looked hard, you saw the water come down in them; but still an uninvaded strip remained between that and where we were, where the air was clear and no drizzling had begun. We went on a little way, and when I looked across again the strip had narrowed and gray bars of rain were falling between us and pieces of woodland that had been unblurred the last time I had seen them. . . . I put on my rubber coat. (This was made like a pea-jacket.) When we got to the head of the valley there was a very much larger cloud coming down on us, you may say, across the wind. We turned, following the ridge toward the big Needle which we had gradually got between ourselves and camp. Below us began a new valley at the bottom of a cauldron. On the other side of the cauldron the air became thick white; then a sheet of storm came across. The cauldron went out of sight, and the hail began at a rate to chip pieces off one's ear. The ground swarmed with bouncing pellets, and they soon filled up the holes between the stones which lay on the hillside. We got down, and huddled each under his horse, and the horse did as much huddling by himself as he knew how. We could see nothing but a general shooting slant of white. All the lines of the mountains were gone. I got the brim of my hat down against my collar, but not before a train of hailstones had rolled down my spine. . . . The lightning was constant, and getting nearer. We were the only raised objects in the district, and we had four guns. So George got away from the group of horses, guns and men and crouched along in the hail, and I crouched after him. Every now and then a particularly ugly crash of thunder would happen, and this

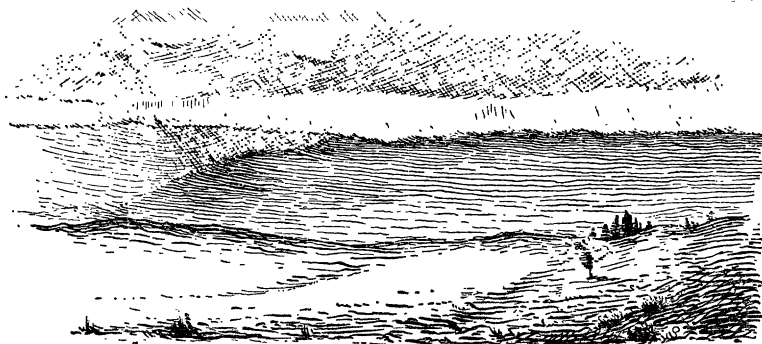
would seem to prod George a few feet further away from the dangerous mass of attraction. I did not at all relish the situation. I was chilled all the way through, my shoes had been cold a long while and now grew steadily wet. I dragged off a limp mass of slush, once my glove, and I pondered on the phenomenon of lightning. . . . I turned round and saw Richard's bent head, and Paul wearing a most miserable expression (these two men were Indians), and the shrinking horses, with their tails tucked in and their heads tucked down, and all four feet converging into a pivot under their middles. . . . This gave me a notion of my own appearance, and I roared enough to have made me warm in any other weather but what was going on. The hail melted on my rubber jacket, and trickled down on my breeches where the seat of them was thin by the constant saddle. So far as the look of things went, it was mid-winter and no sign of spring. The pelting lasted a long time, at the same unslackened rate, but at last it began to fall more gently and wetter, and the view thinned out in front till part of the valley came into sight, very faint and with impenetrable hail coming down beyond. Everywhere was white that was not too steep for the stuff to lodge upon. Paul and Dick went off to look over the divide and see if we could go home a new way. And then a thing happened which must seem incredible to any but the man who has knowledge of it by theory or experience. I was wandering about with George, noting the decrease of the storm, when something near my head set up a delicate hissing or spitting. I listened and found it was in my hat. . . . The hail came very fine and gently now, but it began stinging behind my ear worse than it had done at all. Getting tired of this, I turned my face to the wind that was left, and found the hail perfectly harmless, while the stinging behind grew a little sharper. My hat continued to hiss. Feeling very uncanny, I called out to George to know if anything was the matter with his head, explaining what was going on around mine. He nodded uneasily, and drew away from me as if I were an explosive. I connected my hat with the stinging somehow, and pulled it off. The hissing was in the brim, and died out as I stared at the leather binding and the stitching. The pricking behind my ears stopped too. George, a little below me on the hill, complained with his hand up to his head that it was getting unbearable. "Take off your hat," I said. He did, but relief not coming at once, "Take off your spectacles," I added. These

measures were successful, and we discussed what had ailed us. According to George, our hats, becoming damp, had been charged like Leyden jars and, growing overcharged, had unloaded into our heads.

I have made no attempt to change and render more dignified the somewhat informal character of this chronicle. It was written a few hours after the experience in the hail-storm which had not reached the valley where our camp was. When we returned there, we found the aspect of summer as unchanged as when we had left it in the morning. On the top of the mountains the hail stayed only a few hours beneath next day's sun. As we continued our hunt for mountain sheep, there was not a trace of it.

OWEN WISTER

PHILADELPHIA,
November 21, 1908



A NOTABLE CLOUD BANNER

TO THE EDITOR OF SCIENCE: Early in July, 1907, an exceptionally fine cloud banner formed on the southern end of the Bridger range in southwestern Montana. This range, an isolated outlier of the Rockies, trends north and south, thus acting as an obstruction to frequent squally and showery northwest winds which approach it across the Gallatin Valley to the westward. On the occasion mentioned, the writer was camped six miles east of the southern end of the range. Brisk thunder showers from the northwest had occupied most of the afternoon until about five o'clock, after which the sky remained overcast with nimbus and occasional flying patches of fracto-nimbus. Presently little cloud caps

began to form on the range, as a result of the adiabatic cooling of a northwesterly air-current forced to rise in crossing the obstruction. They grew rapidly, very soon uniting into a long cloud cap over the whole visible length of the range (five or six miles) and trailing off to leeward from its southern end to a distance of two—a cloud seven or eight miles long in all. The ragged end at intervals sent off scraps resembling fracto-nimbus, which were gradually dissipated as they drifted away from the parent cloud.

The spectacle of a cloud-waterfall over Bridger Peak, the highest portion of the range visible from camp, was nothing short of magnificent. Enormous billowing masses surged one after another across the peak, cascading down the leeward slopes and vanishing in succession as a result of adiabatic warming.

There was no associated standing cloud to leeward. Either the obstruction offered by the range to the passage of the air-current was insufficient, or the current itself was too weak, to set up a secondary wave high enough to raise the air again to condensation level. In this respect the Bridger cloud differed from the clouds over the Cross Fell range in northwestern England, where the famous Helm Bar often tops the crest of a long standing wave to leeward of the mountains. Its occurrence is described by Brunskill in the *Quart. Jour. Roy. Met. Soc.*, X., 1884, 267-275. Professor W. M. Davis reports a similar case for the Cevennes in the *M. Z.*, XVI., 1899, 124-125.