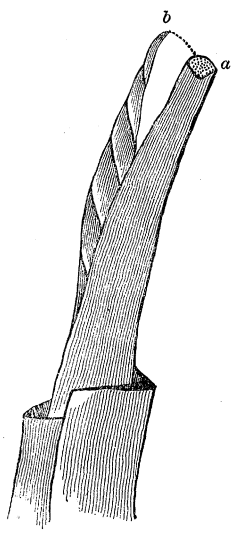
Expulsion of water from a growing leaf.

My attention was some time ago called to an interesting and remarkable fact in connection with the expulsion of water from the tip of a growing leaf. It is well known that drops of water are often found on the margins and apices of growing leaves. It is readily observable in corn and other grasses (see Sachs's text-book, p. 676); but the phenomenon to which I wish now to call attention is of another character. The circumstances were as follows: —

A lady had growing in her house a strong and thrifty Caladium with three or four large leaves. A new leaf being ready to expand alongside of an old one, this last was cut off at *a* in the figure. It was noticed soon afterward, at about half-past ten A.M., that from the apex of the new leaf (*b*) there was being shot out, for a distance of about an inch, a jet of water, falling in the shape of very fine spray on the cut surface of the other leaf. The jets were counted, and it was found that there was a regular *pulsation of about a hundred and eighty per minute;* that is to say, three jets of water were forced from the apex of the leaf every second. It was observed from time to time until five P.M., and but little cessation of the rate of motion was seen. At eight the next morning the pulsations were about a hundred and twenty per minute; and they gradually decreased, until, on the third day, drops of water would accumulate at the apex, and be expelled with some force at a rate of about ninety per minute.



It is to this regular pulsating movement of the water that I wish to call attention. I cannot find, in any of the books accessible to me, any account of any such motion in the water of plants. Sachs does not mention it; and, if any of your readers know of the mention of any such motion, I should like to know where it is to be found. We know that the exudation of water from cut surfaces, or newly-expanding leaves, is often caused by the taking-away of an evaporating surface (say, a large leaf) while the root is still absorbing a large amount of moisture from the soil (see Sachs's text-book, p. 689); but why this pulsating movement? There can be no doubt as to the accuracy of the observation, as it was seen by several persons besides the owner of the plant. Prof. J. W. Lloyd of this city has informed me that some years ago he made the same observation, but he has not been able to give me an exact statement as to what took place.

JOSEPH F. JAMES.

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[This interesting phenomenon has been described by Musset, who states that water was forced from the leaf-tips of Colocasia antiquorum, another plant of the Aroid family, with such force that the jet was three inches and three-quarters high (*Comptes rendus*, 1865, 683). Professor Pfeffer, to whom we are indebted for this reference, calls attention to a singular communication by Munting (1672), who describes the emission of a fine stream of water from the leaves of certain Aroideae, *resembling a fountain.*]

A scientific swindler.

A few weeks ago a man calling himself N. R. Taggart, and claiming to be a member of the Ohio geological survey, visited Philadelphia. He called on the principal scientific men of this city, and attended one of the regular meetings of the Academy of natural sciences. He seemed to have an extended acquaintance with scientific men all over the country, talked very glibly about fossils, and claimed to be preparing a report on the Productidae for the Ohio survey. He is about five feet eight inches in height, a hundred and sixty pounds in weight, heavy set, heavy featured, with light hair, and rather deep-set eyes, shabbily dressed, and wore an old gray overcoat. He had an adroit way of ingratiating himself into the confidence of his intended victims; and then, if he could not steal, he would, under some plausible pretext, borrow valuable books or specimens to take to his hotel, and forget to return them. His victims are to be found scattered all over the country. In New York he was E. D. Strong of Fort Scott, Kan., and claimed to be employed by the Kansas Pacific railway to collect statistics of coal production. In West Philadelphia he gave his address as E. Douglas, Columbus, O., member of the State survey. In Auburn, N.Y., he was a deaf-mute, under the name of E. D. Whitney, U. S. geologist, Denver, Col. There he obtained a large quantity of valuable books and fossils from the family of Professor Starr, in the absence of the owner. In Harrisburg, Chambersburg, Columbus, and Indianapolis he was a deaf-mute. He swindled the state geologist of Indiana out of over a hundred dollars' worth of scientific books. From the Cleveland historical society's rooms he obtained Indian relics of great value, and in Cincinnati, minerals and fossils which he converted into cash. He has been permitted access to several museums, public and private, from which he has succeeded in abstracting valuable specimens, and sold them. Any information in regard to the real name and residence of this man is much to be desired.

F. V. HAYDEN.

AN INTERNATIONAL SCIENTIFIC ASSOCIATION.

THE coming of the British association in August next to this continent to hold its meeting will result, it is hoped, in bringing the scientific representatives of two great nations twice together, — once at Montreal; and later, again, at Philadelphia. The interest felt in these two gatherings is very great, and rapidly increasing as the time approaches for their occurrence. It is realized that they will be very important and delightful. Both meetings will be international in character; and the pleasant anticipations formed in regard to them suggest the advisability of establishing some permanent organization which may insure

the recurrence of similar opportunities in the future.

There are many persons who have long wished that an international scientific association should be formed, where those of similar pursuits could meet one another, and, as it were, exchange thought between the nations. All acknowledge that the chief value of the large general associations lies in the stimulus of personal intercourse and discussion; and this would doubtless apply still more decidedly to an international society. The principal purpose of its meetings would be, we doubt not, to secure that stimulus.

An international scientific association would necessarily be largely European, and Americans would have to cross the ocean to attend its sessions. But with our habits of active travel, this necessity cannot be thought likely to prove a serious obstacle to our active participation in the association; which might, too, at some time, be induced to follow the example of the British association, and meet upon our side. Perhaps no opportunity will soon recur so favorable for the formation of the suggested association as the meeting at Philadelphia, and it seems very possible that the initiative may be there taken. The two English-speaking races can then act in concert, and, by a double appeal, more easily achieve the result than either could alone. America takes no share in the international complications which agitate Europe, and is therefore a friend with all, and might, on that account, the more readily inaugurate such a general movement.

Some limitation would necessarily be made upon the membership of the body suggested, confining it, perhaps, to original investigators. It is a question how far the indiscriminate presentation of scientific communications could be made feasible; for, if the whole of the annual additions to science were to be presented, the association would sit the entire year. Obviously some restrictions are requisite: their character must be decided by discussion and experience. Thus, formal addresses upon special subjects, or discussions limited to specified topics, might serve the purpose; or it might be considered wise to follow the example of the new Society of naturalists, which devotes its attention to the ways and means, the practical technique, rather than the results, of science. We hope that the plan we have briefly indicated will meet at least with consideration, and awaken discussion, so that it can be ascertained whether it ought to be pursued farther. It is too early yet to venture upon any definite proposals.

THE ALASKA MILITARY RECONNOISSANCE FOR 1883.[1]

LEAVING Tahk-o, the Yukon, for the first time, assumed something of a riparian air, the draining river being nine miles long. It is from three hundred to four hundred yards in width, very swift, and the first part of its course full of rocks and great bowlders, that make its navigation hazardous for even a stanch raft. On its right-hand bank stood a roughly built Tahk-heesh house, the only one on this part of the Yukon River for hundreds of miles on either side; and even it was deserted. The next lake was nearly thirty miles long, and appreciably wider than those through which we had sailed. I called it Lake Marsh, after Professor Marsh of Yale college.

I have spoken of a great number of glaciers that were constantly encountered, and the white condition of the water emanating from them. In Lake Marsh the water near the shores was very shallow, owing to large deposits of this fine glacier mud; and we often found it impossible to get much nearer the beach than sixty to eighty yards, although our craft drew less than two feet of water. When a high wind lashed the lake into waves, these mud deposits gave a clear-cut outline between the whitened water within their exterior edges and the deep blue water beyond, that showed in many places an extension of the deposits of four hundred to five hundred yards from the beach. It is possible that the stages of water may vary in Lake Marsh at different seasons sufficient to lay bare these mud-banks, or cover them so as to be navigable for small boats; but there seemed to be a wonderful uniformity in the depth of the water over these banks in every part of the lake, being about eighteen inches. Through this tenacious mass, that even threatened to pull off our rubber boots, we would have to carry our camping-material each evening as we went into camp, and each morning as we broke it for our departure. The trees on the hills overlooking the lake, as had been often noticed before on the upper waters of the Yukon, all leaned more or less conspicuously towards the north, or down stream, thus plainly showing the prevailing direction of the stronger winds. Faint signs of terraces were still to be seen on the hillsides; but they were lower, nearer together, and not so well marked as on Lake Nares. The level ridges on the eastern hills were still covered with the luxuriant yellow grass of last year's growth, and, as we viewed

[1] Continued from No. 55.