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STILL ANOTHER UNPUBLISHED LETTER  
FROM SPRUCE ON EVOLUTION

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In 1978, I published an unknown letter from Richard Spruce on the theory of evolution (Schultes, 1978). During the course of my research on the work of this remarkable and unsung hero of tropical American botanical field studies, I have found still another letter showing that Spruce was an early thinker along evolutionary lines.

This letter was written from Welburn, Yorkshire, on May 28, 1870, when Spruce had retired to his cottage in Coneysthorpe following 14 years of intensive plant collecting and floristic studies in the Amazon Valley and in the northern Andes. It is my opinion that few scientists—including modern investigators—have ever had such an inclusive and personal knowledge of the Amazon flora as did Richard Spruce. It was the result of his own intimacy with the flora of first the Malton district, then the Pyrenees and finally of the Amazon and Andes that led him to speculate on plant classification, phylogeny and evolution. This letter is preserved in the British Museum (Natural History) to the authorities of which I express my deepest appreciation for permission to publish it.

“My dear friend—

“I have not been well enough lately to write to you as I could wish, or to make a few notes on your drawings—as I hope to do in a few days and then return them to you. I shall try to send the two memoirs on *Orthotrichum* by this post. Dr. Wood has certainly succeeded in involving the poor *O. anomalum* in a degree of ‘obscenity and mysticism’ (to use his own words) which I have rarely seen paralleled.

“Your vindication of the character of *Dicranium strumiferum* is curious. My recollections of the moss are very dim. I suppose Mitten would place *D. polycarpum* in his genus *Anisothecium* (see Musia Austro-Am.). I note a slight laxity at the basal angle of one of

HYPNACEAE  
*Plagiothecium*

Tab. VII.

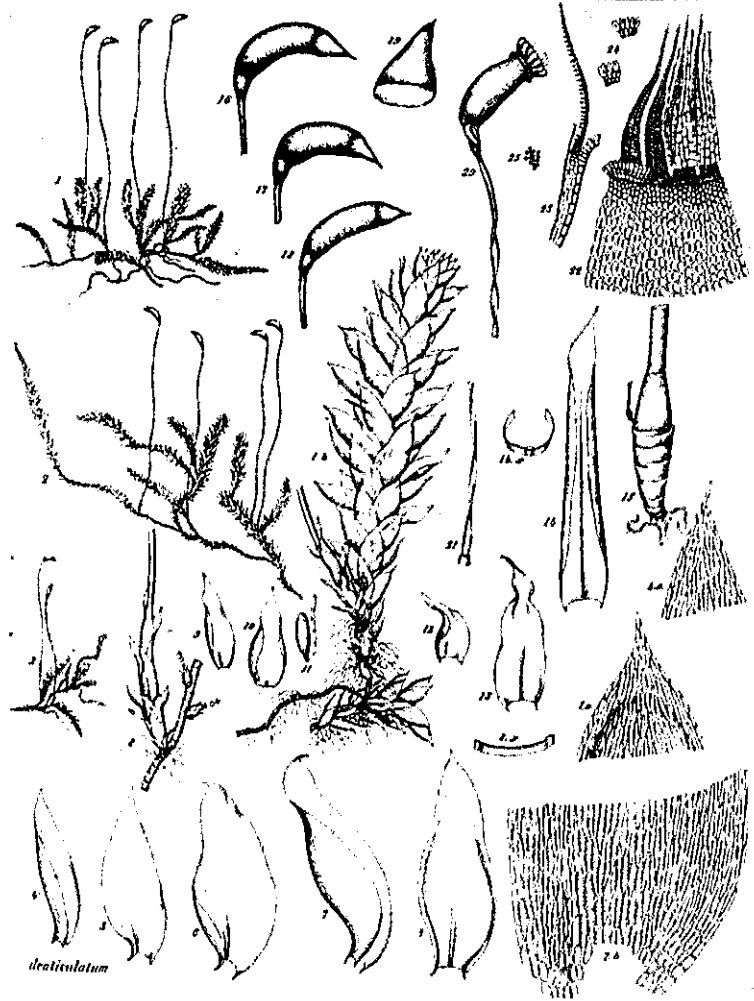
*denticulatum*

Figure 1. *Hypnum/Plagiothecium denticulatum*. Bruch, Ph., W. Ph. Schimper and Th. GümbeI: *Bryologia Europaea* 5 (1851-1855) t. viii (501).

HYPNACEAE  
*Plagiothecium*

Tab. XI.

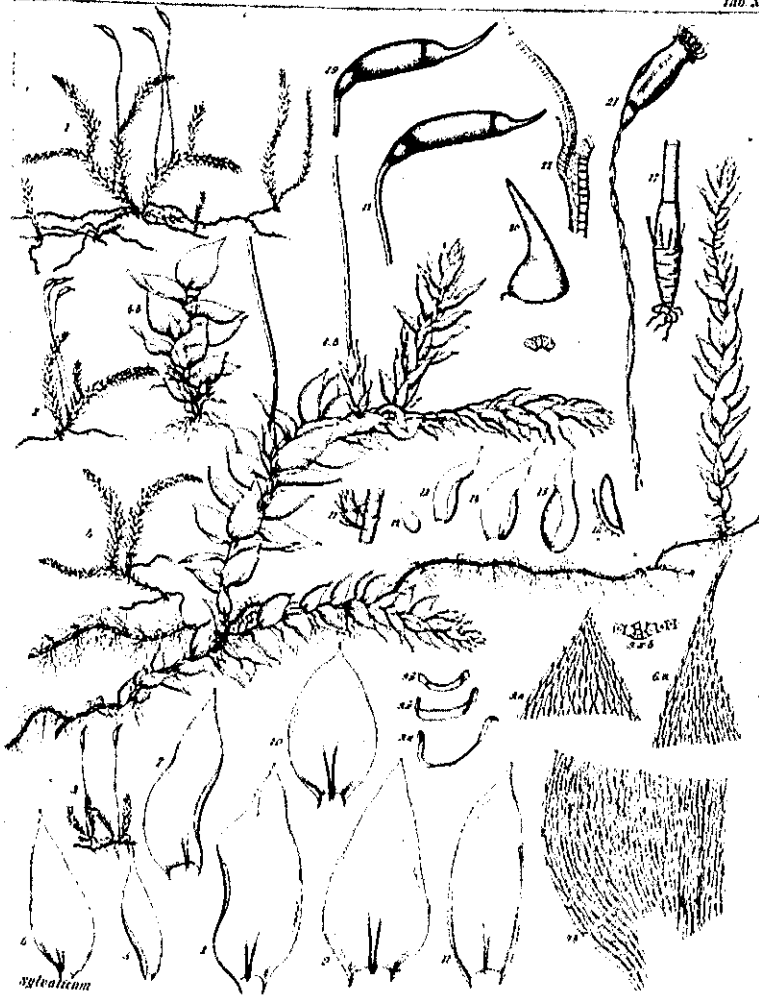


Figure 2. *Hypnum/Plagiothecium sylvaticum*. Bruch, Ph., W. Ph. Schimper and Th. Gumbel; *Bryologia Europaea* 5 (1851-1855) t. xi (503).

the leaves of the latter in your preparation. If I may make to you an auricular confession: I wd say that the auricular character seems to me quite insufficient to separate *Dicranella*, etc., except as subgenera, from the great genus *Diacrinum*.

"If you come here you shall see Bentham and Hooker's great work, the *Genera Plantarum*, wherein they have taken great pains to make their genera *large* natural groups. I tried to get Mitten to follow the same plan. He has done so in some measure, but he is crotchety, and he does not know how to contrast characters—sometimes indeed the essential distinction has altogether escaped him, and he is often very vague and untrustworthy about sexes and peristomes.

"When travelling in South America and long before, I knew aught of Mr. Darwin and his speculations, I had convinced myself that the same Forces and the same Laws are in existence now as have been from all eternity and will be *per secula seculorum*. That the Evolution of Organic Form is continuous and without any break. Also that the unceasing variations of living beings are progressive—and mere oscillations around first points which we call types of species or genera; consequently, that if we could have before our eyes all the individuals now existing and that have ever existed of any (so-called) species or genus, we should find it impossible to draw any line of separation, or to indicate any central point, for our species or genus, and especially to distinguish one species from another of the same genus.

"Darwin's doctrine that a Natural Classification is based on community of descent seems to me irrefragable. To take an example: *Hypnum denticulatum* and *sylvaticum* may be several states of the same existing species—I think they are. But you and others may think them so completely severed that they do not interbreed and that no exactly intermediate forms now exist so that they truly merit to be called 'species'. But, even so, it is clear to me that at a period immediately preceding our own the two had a common progenitor. At a period more remote there was but a single species of *Plagiothecium*, from which all of that ilk have descended, the forms having gradually multiplied by the accumulation and inheritance of minute changes induced by varied external conditions, and having been segregated into species by Nature's selection of those forms only best fitted to survive. At a period still more remote every *Hypnum* (as we used of old to understand that name) must have had but a single progenitor. It is this genealogy we attempt to trace in our Species, Genera, Tribes and Orders; and the more closely we can do so, the more natural will be all our groups. So, with regard to

species, it matters not (were it not for this awful question of "names") whether we give a doubtful species a distinct name, or regard it as a variety of the species to which it stands most nearly related. We are unfortunately often called on to make up our minds as to the degree of consanguinity of individuals and forms when our materials are quite insufficient. A tyro will make no difficulty at considering three mosses (whose differences seem to his slender experience constant) distinct species; while a veteran like yourself will find it quite impossible to come to a definite decision; for 'fools rush in where angels fear to tread.'

"Whenever we are able to rigidly define, or assign limits, to genera and species, surely it is because either we do not possess those intermediate forms that actually exist, or else those intermediate forms have already ceased to be, through the action of the inevitable law of the 'Survival of the Fittest.'

"The Misteltoe may be very widely separated in structure from the tree whereon it grows. (I have gathered above 60 species of Misteltoe, growing on trees of many different families). Still the difference is only one of degree, and it is sometimes not needful to go very far back (down the genealogical tree) to arrive at the type of plant which may have been their common ancestor. With the whole of the existing vegetable kingdom before us, we see in space something very like what must have taken place in time.

"If you have thought out this and collateral questions as anxiously as I have done, and have come to different conclusions, I do not wish to force mine upon you. The one thing certain (for me) is that this universe is regulated by immutable laws; that to find out these laws, physical, moral, etc. is to bring ourselves into closer relation with the Supreme Intelligence from whom they emanate and who must be infinitely superior to all the gods that mythologists (or theologians, for there is no difference) have ever invented.

"Nearly all our most eminent naturalists are converts to Darwinism. Bentham hung off a long time but is now one of its most strenuous advocates. A few German idealists refuse to be convinced, and it is they who are just now causing the greatest confusion among species. Two of them have been writing on the geographical botany of India. Hooker and Thomson have written on the same subject. But in several cases a single species of H. and T. stands for about 25 species of the Germans:—There is no end to it, if you will substitute ideas for facts.

"Most faithfully yours,  
R. Spruce

"W. Wilson Esq."



## LITERATURE CITED

SCHULTES, R. E. 1978. An unpublished letter by Richard Spruce on the theory of evolution. *Biol. Journ. Linn. Soc.* 10: 159-161.

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