

## NATIONAL RESEARCH COUNCIL

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B & 21st STREETS, WASHINGTON, D. C.

*See last paragraph.*

July 22, 1924.

Mr. Robert Hanson,  
Hotel Wellington,  
Miami, Florida.

Dear Mr. Hanson:

With reference to the points presented in your letter of  
July 10 --

Very likely many of the swamps of widest extent and most  
rapid peat formation are covered with forests <sup>between</sup> which stands a  
thin (not more than two feet deep) layer of water. Many of these  
swamps contain large numbers of buried logs, as well as roots and stumps.  
The peat may be very pure and relatively deep. The peat is usually  
brown, woody, and hard to dig.

Do you use the same type of peat sampler as that used by  
C. A. Davis?

Did not the red cedar layer in the twenty-three feet deep  
bog that you described extend below tide level, thus furnishing incon-  
trovertible evidence of the subsidence of that zone below sea level,  
since the trees grew in places on the bog and took part in the forma-  
tion of the peat?

The cypress zone should show unmistakable details of the  
buried wood when closely examined. It probably does; otherwise, you  
would not speak of it as a cypress layer. We need sampling from top  
to bottom of such a bog, just as you say, with analysis of the fresh  
material <sup>from</sup> different zones.

Just why you should find highest nitrogen between the base  
of the second foot in depth to the eighth foot is hard to guess. If  
your observation holds good in general, the nitrogen distribution may  
have a relationship to the physiographic history of the Floridian  
Peninsula. Speaking of the subsidence of your Julington Creek bog,  
let me add that a subsidence corresponding closely to and keeping  
closely abreast with the rate of upbuilding of the peat was prevalent  
in the swamps of coal formation. I am sure that C. A. Davis can not  
have escaped the conclusion that Florida has recently been sinking  
slowly beneath sea level.

With reference to your observations on the effect of marine  
invasion on peat formation, I think everywhere, or practically everywhere,

a sea invasion over a fresh water swamp practically terminates the formation of peat of any value. Vegetable matter is apt to decompose and, mingling with sand, form a sandy muck. In general, the conditions for growth and continued increase of depth of this muck are likely to be unfavorable, though in some cases it would seem that peat formation of a kind may continue with subsidence at just the right rate.

Very likely the outcropping peat along your shore will be found to be of fresh water origin if you dig into it and examine it carefully. Sand dunes and bars, especially the latter, may overlie peats or coals, though blown sand is generally less evident than water-laid sand. When you have a chance, dig into some of the peat along the shore and see whether it does not contain large amounts of fresh water trees.

The monazite and other heavy minerals in your sands are well-known, and you will recall that they were tested, if not actually operated, during the war. The sources of the heavy minerals are unknown, but they are supposed to come from the Piedmont of Georgia or South Carolina.

I had not heard of Senator Fletcher's plans for your investigation of Florida peats until reading your letters. I learn, however, that the Bureau of Mines seems to have other plans and I think it extremely doubtful whether any important place in those plans is given to you, although I do not see how an investigation of Florida peats can be made without drawing on your years of investigation and study for requisite information.

Very truly yours,

*David White*  
David White,  
Chairman, Division of  
Geology and Geography.