upon again to

I inclose a leaf of a "Tupelo" gathered (with fruit) by my brother in the swamps near the mouth of the Ohio — with Taxodium, sword and especially root sprouts — base of tree 3 times as thick as stem etc — used to buy up fishermen, & cork etc

It can not possibly be the true Tupelo, Nyssa uniflora — but does not seem to be N. multiflora, which is also common down there, under the name of "Black Gum"

St Louis Jan 6 1863

My dear Gray

my best wishes for you and Mrs Gray for this new year — my best wishes and hopes for the country — for peace at any cost — You know I have been a peace man from the first almost as much as any Quaker, whom, I hope, you Yankees wont hang in these enlightened days.

I continue to be often the Coniferae: I find in all the works I could consult no clue as to the true nature of the seed of Coniferae. What is the wing? is it the empty part of the ovulum, not filled with the nucleus — or is it a thickened layer of the scale under which the ovulum and between which and the mass of the scale is developed and protrudes. — What takes the place of the funiculus and where do the spiral vessels enter the ovulum? I must examine the developed ovulum ideally next spring. Meantime I have examined a good many seeds

and find the following pretty characters in the sections of the old Genus Pinus. I am anxious to examine the male flowers and suspect that if one is separated all must be distinguished as genera.

I must premise that I call the upper side of the seed that which is free, the lower side that which is attached to the supporting scale

Seed of Abietinae

I Membrane of the wing covering the entire upper side of the seed, more or less folded over the edges.

1, firmly adhering to the seed, connate with it

a, Embryo curved: Cedrus

b. Embryo straight: Larix, Tsuga

(* Testa with large receptacles of resin)

2. detached from the seed at maturity

a, but firmly enclosing it by the edges considerably overlapping — Abies

b, permitting the seed to drop out — Picea

II Branches of wing encircling ~~covering~~ the edges of the seed only, detached at maturity. — Pinus

(Testa without such receptacles)

* Abies (Tsuga) Douglasii is destitute of these receptacles.

Among Hall's plants I find Pleurogyne rotata, but remark that 1, the ovules cover the whole inner surface of the ovarian cavity, and 2, the structure of the corolla is certainly = Swertia; 2 (nectaria) glands at the base of the segments are surrounded by a petaloid funnel, with fringed edges. — It is only the curious lateral stigma which separates it from Swertia.

I send you a plate of Gentiana barbellata. —

Give me, if you can, an exposition of the structure of the seed of Abietineae and especially the wing! What is it morphologically?

Ever yours

G Engelmann

Over