Dear Josh:

I cannot be sure from my lecture notes just when the work of Arena et al. was first given in my phylogenetic course. I know that in the 1946-47 academic year that the paper was mentioned. They cited it as the original work of Ellen Dinger's class notes who took the course that year.

Dean Dinger was a member of the same class and his notes are similar to those of Dinger.

There is no doubt in my mind that the publication of the work of Arena et al. was fully realized by the student group of biologists in the 1940s. We had many discussions, informal, to be sure, but we were aware of the significance of their studies.

Regards

Marvin Rhoades

Rhoades
The nucleic acid - Precursn at Chromosome level
Each cell of bacteria enclosed in capsule
Hep - type differs in structure of stratum - polysaccharide
Change may occur from smooth colony -> rough
(type 2S) (Vilent)(no virulence)

Growth 1928 found if type = Rough, grown in presence of factor
of type 3 smooth, type 2R -> type 3 S
A bacteriophage causes mutation
Every, helicity of the head - attribute; subset involved in change is pure
nucleic acid -
if type 1 phage added, it becomes type 4S
but known in this case whether change is in gene or cytoplasm
this is first case of change in which you can predict result
rarely desist attribute antigen nucleic acid is pure

Am. Naturalist - H. \textit{Cholenthruse} - writing agent
Strong - from Sept. 1957
Reduces + must, 2 + produce alterations. + mutations
no subset known which will produce one + not the other

\textit{Spontaneous mutation rate}:
Mendel's results 1942 - sex mutation rates:
for Drosera melanog.
\begin{align*}
\text{leaves} : x + : x- : 2/1000 \\
\text{leaves} : x_+ : 2/1000
\end{align*}

in maize mutation rate - $A \rightarrow a$, no data in corn, $a \rightarrow A$
Freq. for diff. genes - 1. $1/10^2$ million genes
2. $1/10^3$ million
3. $1/10^6$ million, etc.

If many loci studied, genes seem to fall in all classes - some more
mutable than others
at a single locus - a dominant allele $W$ is stable, recess. allele $w$ - stable, but
another allele - mutable ($W'$) is unstable

In some stocks mutation rate raised by certain gases
- Denser, Neel, \textit{Pl Lowe}, Goldschmidt - found increase induced
by gases