F. P.

December 22, 1944

Dean Janet Clark
College for Women
Anderson Hall

Dear Janet:

We support wholeheartedly your suggestion of Barbara McClintock for an honorary degree.

We believe that Dr. McClintock is without a doubt the most outstanding cytogeneticist of this country and is hardly surpassed by anyone elsewhere. She began her scientific career in 1929 with a paper which laid the cytological foundation for all later work in corn. In 1931 she showed for the first time microscopically the reality of chromosome aberrations such as deficiencies and inversions whose existence had been deduced from breeding experiments. Her observations demonstrated in detail the essential phenomena of chromosome pairing which later were used in the analysis of the salivary gland chromosomes of Drosophila. In the same year she and her student, Creighton, furnished a cytological proof for genetic crossing over. Her paper on non-homologous association of chromosomes was one of the outstanding contributions to the International Congress of Genetics at Ithaca (1932). In 1934 she discovered the relation of the nucleolus to particular chromosomal elements. Since 1938 she has published on the behavior of broken chromosome ends, demonstrating the tendency of such ends to fusion as well as the existence of a "healing" process at the breakage point.

While this enumeration deals with very technical subjects, they are all discoveries at crucial points of basic cellular and genetic mechanisms and their importance is of a general nature. Furthermore, her personal influence has been great on the scientific development of a group of investigators who are now among leaders in their fields.

Miss McClintock's total list of publications is comparatively small. The reason for this is that she does not publish until her subject is as finished and polished as is possible. Each of her papers is an experimental, intellectual, and, in a certain sense, artistic masterpiece.

As you know, she has been elected to membership in the National Academy of Sciences this year--a woman, and at the age of 41 years. She was Vice-President of the Genetics Society in 1939 and has been elected President for 1945.

Dean Janet Clark December 22, 1944

In recommending her to the Committee on Honorary Degrees, we know that our evaluation of her is shared by other members of our departments. We hope that she will be considered favorably, but we cannot suppress our regret that the University could not have honored Miss McClintock and thus itself before the recent external honors have made her choice a less original one than it would have been earlier.

Sincerely yours,

David R. Goddard

Curt Stern

Copy to: Mr. John Russell

her contemporaries as grad. students at Cornell

1) Teacher of ↑ Beadle, Rhoades etc

2) Characteristics of work: reflection — checking on all observational and intellectual loopholes till each paper is as near to permanence as humanly possible. Bibliography comparatively small about some 20 papers in 18–20 years but i.e. ± 1 paper/year but — as the Lewis said to a more prolific breeder: "I have only one child but it was a lion".

3) Field of work: Cytogenetics of corn

1929 a) clarification of chromosome morphology in corn as a basis for correlating the genetic data with cytology

1930/31 b) first cytological demonstration in any organism, of deficiencies involving known genes, and of a chromosome inversion. Cytogenetic mapping of genes

1931 First ↑ cytological-genetical correlated demonstration of crossing over

1933 Discovery of non-homologous pairing in meiosis

1934 Clarification of relation between nucleolus and a particular chromosomal element.

1938-1941 Elucidation of the sequence of events in a chromosome which has been broken mechanically and, by implication, clarification of the behavior of chromosome ends broken by various agents. Discovery of tendency of broken ends to fuse with broken ends, of the non-"healing" of such ends in certain tissues, of their "healing" in other tissues. Of the instability of the genetic constitution of cells due to the fusion of "open" chromosome ends ~~with~~ their in such a way as to lead to the origin of chromosomes with two kinetochores (= centromeres). These two kinetochores frequently will "pull" the chromosomes to opposite poles, thus causing ~~as~~ a new break, followed by new fusions, new breaks etc. and inf. As a consequence of these processes

deficiencies and duplications of gene originate. If suitably marked the plant will have a mosaic "variegated" appearance". Thus: cytological explanation of mosaicism in plants.

1941 Effect of homozygous deficiencies of genes on phenotype. Fundamental discussion of nature of mutations in terms of chromosomal loss.

1945 Chromosomes of the fungus Neurospora. A successful beginning in making these notoriously difficult nuclei available for use in connection with the work of Beadle's group.

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4) Excellent speaker on scientific topics. Some years ago, at a Symposium lasting several days, she received loud applause after the presentation of her topic. It had not been the custom to applaud any speaker. Helpful to colleagues and younger people going into Science. Good meteorologist (like Mendel!).