Castanea Mill., the genus of chestnuts, in the temperate regions of the Northern Hemisphere. Three species occur in China, Japan, and Korea, and there are possibly half a dozen more in the eastern United States. To attempt to distinguish chestnuts as shrubs or trees is scarcely scientifically accurate, as one of the writers shows. In the United States there are several native shrubby chestnuts. One of the writers, incidentally, implies that "the spreading chestnut tree" of Longfellow's poem belonged to the genus *Aesculus* L., possibly *A. hippocastanum* L., instead of *C. dentata*. I agree, but it would be interesting to know whether this is an ascertainable fact.

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G. Neville Jones is obviously justified in criticizing us for not using Latin names. However, each of us knew what we were referring to when we said "American chestnut" or "Chinese Chestnut." I felt that if I used the Latin names I would be trying to make people think I am a scientist, which I am not. I am just a plain old nut grower who subscribes to a magazine called *Science*.

Regarding Longfellow's chestnut tree, it is not hard to pin it down as a horse chestnut. It was located in Cambridge, Mass., within view of Longfellow's house, and did indeed shelter a blacksmith's shop. The village authorities chopped the tree down in 1876, over the vigorous protests of Longfellow and others. They said it was a menace to those driving under it with heavy loads. My source for that information is *The Horse and Buggy Age in New England* by Edwin Valentine Mitchell.

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Hybrids and Growing Practices

In his recent article, "Hybrid corn and the economics of innovation" [*Science*, **132**, 275 (1960)] Griliches treats the use of hybrid seed as if it were an isolated practice. Actually, many practices in proper combination are needed to produce a good corn harvest. True, adapted hybrids have the genetic potential to respond to high levels of plant nutrients and to adequate supplies of soil moisture; yet where these are not present the hybrid has little if any superiority over good old varieties.

On the dark-colored soils of the corn belt the hybrids gave an immediate response on many farms because of the excellent soils. But elsewhere it was much more difficult to get the same effects because the other soil management practices had to be devel-

oped before there was significant advantage from hybrid seed.

The recognition of interactions between plant varieties and other growing conditions is exceedingly important for any understanding of modern farming. Our greatly increased efficiency during the last 20 years is clear evidence that successful American farmers have learned this principle. What they have learned is to develop proper *combinations* of practices to suit their soils.

I am fully mindful and appreciative of the great contributions of plant breeders, but the apparent increases in yield due to hybrid seed would be only a fraction of what they are without improved fertilization, water management, and the other essential practices for producing a corn crop. Then, too, the fivefold increase in the use of fertilizers since 1935 would not have given nearly the increases some attribute to it with the old crop varieties.

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It is impossible in a brief paper to cover *all* the relevant aspects of a problem. The figures and data I used were based on experiments that attempted to hold other cultural practices constant. The interaction aspects brought out in Kellogg's letter are undoubtedly very important, and there was no intention to minimize them. The importance of the increases in the use of fertilizer is recognized and analyzed in my paper on "The demand for fertilizer: An economic interpretation of a technical change" (*J. Farm Economics*, August 1958).

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Records for Future Historians

The report by Chauncey D. Leake on "Preserving our science archives" [*Science* **132**, 158 (15 July 1960)] concerns a matter deserving greater attention than has been given it by most scientists in the past. When Samuel Henshaw succeeded Alexander Agassiz as director of the Museum of Comparative Zoology at Harvard University, he wrote to E. S. Morse, director of the Peabody Museum of Salem, as follows (*1*): "It is strange that Mr. Agassiz kept so few mementos of the M.C.Z. I have been getting together such data as I can find as to early workers in the museum—I want to leave a good lot of M.C.Z. data for someone if I do not get a chance to use it myself."

Many scientists do not realize the historical importance of their records. The editorial by Gerald Gruman [*Science* **127**, 1471 (1958)] and the recent conference on science manuscripts reported by Leake pointed up the need for more attention to the historical aspects of science. Over 40 years ago T. D. A. Cockerell at the University of Colorado wrote to Morse as follows (*1*): "I wish we had some systematic way of preserving data on American Science. At the New York Botanical Garden they have a good plan. For each American Botanist they have a large, open envelope or folder into which can be stuffed any letter, Ms., portrait or whatnot. Thus all sorts of data accumulate and will some day be very handy for the historian of American Botany—what a blessing it would be if naturalists habitually filed somewhere, brief accounts of all their collecting expeditions."

A few years ago a national committee of the International Union of the History and Philosophy of Science was formed [*Science* **127**, 1166 (1958)]. The Academy Conference has a Committee on History of Science, and many state academies have academy historians. What is urgently needed is a more general awareness on the part of scientific workers of the need to preserve personal and professional records for our future historians of science.

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Note

1. The letters quoted in this communication are on file at the Peabody Museum of Salem, Mass., and are quoted with the permission of Ernest S. Dodge, director of the museum.