complete misunderstanding resulted, so that Professor Rehder has recently moved to abandon the name *rubra* and allow both species to carry the names subsequently proposed for them. How much difficulty and misunderstanding might have been eliminated, had there been a type specimen to help du Roi avoid his initial error, one can only guess.

No one, it is hoped, would suggest that taxonomists abandon the type system. Yet, the system would be greatly hampered by the suggested omission of one or the other of the authority citations. Full citation tells a taxonomist at a glance that at least two treatments are available, and he invariably needs to study both, unless he wishes to run the risk of perpetuating the many errors which have not yet been weeded out of botanical nomenclature. The first citation in most cases aids to fix the type. The second reveals a critical study of the species, which may or may not be accurate. To omit either would be as serious an error as the omission of a citation from the card catalogue of the Congressional Library.

Jacot (*loc. cit.*, p. 240) places undue faith in existing monographs. His suggestion that the name of the monographer giving the fullest description be cited would result in the greatest confusion. With the adoption of such a rule one could imagine every describer of a new species writing descriptions so ample that each one would cover several pages. There still remain thousands of species which have not been fully described in any monograph but were recognized beyond doubt from their original descriptions and subsequently have been changed from one genus to another. Which authority would one cite under Jacot's proposal in such a case? Jacot's notion that the old original descriptions and the authorities for them are of no practical value but only of historic value is dangerous in extreme. Ecologists, morphologists, geneticists, etc., perhaps do not realize that each of the species with which they deal is painstakingly run through the mill of "ancient" descriptions by some modern taxonomist before he dares drop it into the lap of his biological public. Only so can he be sure that he is contributing to a reasonably sound nomenclature. It is not for nothing that each succeeding International Botanical Congress has carefully revised the code of nomenclature in an effort to guide its constituent membership to greater stability.

Baily (*loc. cit.*, p. 474) charges that authority citation "augments the confusion instead of diminishing it." He cites the example of Solander's species which were published in Dillwyn's catalogue. It is easy to add numerous other examples, such as Duval's species in A. De Candolle's Prodromus. The accepted method of citation under those circumstances is "Solander in Dillwyn," "Duval in A. De Candolle" or the proper abbreviations of those names. Either method permits ready reference to the original description, particularly with the aid of Index Kewensis.

Baily recognizes the prime importance of determining the original identity of a plant name and proposes setting up a periodical to function as a receptacle for the authority citations, synonyms, etc., which so many workers wish to omit from their writings. He does not state why the Index Kewensis and the Gray Herbarium Index do not amply fill our needs, and it is not at all apparent how any other form of index could be more helpful.

It would be interesting, however, to learn how the exponents of authority omission would propose to locate in any index some of the names they might encounter. For instance, *Quercus hypoleuca* might conceivably be recommended to our nurserymen as a desirable ornamental. Without further information the nurserymen would refer to Baily's proposed periodical, where they would find *Q. hypoleuca* Engelmann credited to the American Southwest. But there is also the earlier published and quite different *Q. hypoleuca* Miquel in southern Asia. The American species is known under the present system as *Q. hypoleucoides* A. Camus. Its synonym is cited as *Q. hypoleuca* Engelmann, not Miquel. How could this information be furnished without the use of authors' names?

Even under the present system too many errors and misunderstandings arise. These certainly can not be diminished by the adoption by taxonomists of a more lax system. In fact, in the interest of an ideal of accuracy, complete authority citation (and the citation of any other information which might be helpful in subsequent identification) should be practiced by non-taxonomic botanists as well. Unfortunately, an appalling proportion of these do not even bother to collect or preserve specimens for identification.

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SPRAYING WITH PLANT GROWTH SUBSTANCES TO PREVENT APPLE FRUIT DROPPING

ORCHARDISTS need no introduction to the subject of late fruit dropping, a trouble which occurs with many apple varieties and other fruits just prior to and during harvest time and which annually results in substantial losses. For those less familiar with the problems of apple growing, for instance, it may be stated that this tendency of the fruit to drop is, in general, a characteristic of early ripening varieties, but is also of frequent occurrence with a number of important midseason and late apples. As the fruit approaches the proper maturity and color for harvesting, the danger of loss from dropping becomes more and more acute. With varieties susceptible to this trouble, each day that the fruit is allowed to remain on the tree to attain these desirable market qualities

becomes a gamble with fate. With some varieties, Stayman Winesap, for example, a disastrous drop may, without warning, occur almost overnight. On the other hand, McIntosh, a notorious dropper in many fruit sections, may fall steadily for several weeks prior to harvest time.

It is well known that climate and weather influence fruit dropping and are therefore important factors determining the feasibility of growing certain varieties in a given region. It is conceivable that elimination of the danger of dropping, in addition to safeguarding those varieties which consistently show this characteristic, may also widen the growing range of certain others, which drop badly only in the more southern regions.

Most of the commercial so-called plant growth substances have the propensity, in varying degrees, of delaying the normal abscission of various plant organs. Among a number of these substances tested naphthalene acetic acid and naphthalene acetamide have been reported[1,2,3] as being particularly effective in delaying the abscission of flowers of the date and holly, in the latter case, resulting in parthenocarpy. The frequent observance of the effect of these compounds in delaying the abscission of floral structures, stems and also of petioles on treated cuttings led to the attempt to apply them in a practical way to the problem of apple fruit dropping by spraying the trees. The results to date have been more than gratifying.

Thus far, trees of seven varieties, including Yellow Transparent, Williams Early Red, Oldenburg, Early McIntosh, Wealthy and three new early varieties, as yet unnamed, have been sprayed with various concentrations of the growth substances and a record obtained of the percentage of the total crop dropping from the trees over a period of time in comparison with the drop from untreated trees. Naphthalene acetic acid and naphthalene acetamide applied just prior to fruit maturity have proved to be particularly effective with all the varieties thus far treated. In addition to these two substances, indole acetic and indole butyric acids have been used, although the indications are that these indole compounds are much less effective in preventing abscission than either of the two naphthalene compounds.[4]

In the first experiments much stronger concentrations were used than are now proving to be necessary. Williams Early Red, as an outstanding example, was sprayed with .001 percentage of naphthalene acetic acid on July 13. By July 25 the unsprayed control trees had dropped from 64.2 to 90.8 per cent. of their total crop on actual fruit count, whereas the sprayed trees had dropped only from 1.3 to 1.5 per cent. of their fruit. Concentrations of .00025 per cent. on other varieties have since been found to bring about very marked inhibition of dropping. The effectiveness of some of these compounds in such dilute concentrations would definitely recommend their usage as a practical orchard procedure. Their practicability becomes enhanced if the present indications, that they can be added to the regular spray schedule, are borne out by additional experiments.

It is anticipated that a detailed account of the experiments will be issued in the near future when the results are compiled on additional experiments, now underway, related to various practical phases of application. This brief report, it is hoped, may serve to call to the attention of other investigators the possibility of using these compounds to advantage in the numerous problems involving the abscission of various other fruits and plant organs.

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[1] *Bot. Gaz.*, 99: 184–195, 1937.
[2] *Ibid.*, 100: 868–871, 1939.
[3] F. E. Gardner and P. C. Marth, *Bot. Gaz.*, 101: No. 1, 1939.
[4] Acknowledgment is made to Franklin D. Jones, of the American Chemical Paint Company, Ambler, Pa., for supplying in generous quantities all the compounds used in this work.

"DISTINCTION" IN "SCIENCE"

ACCORDING to a news item in the *Herald-Tribune* for July 19, 1939, the Postmaster General, James A. Farley, has authorized the issuance of a special series of postage stamps in honor of Americans who have "achieved fame" in the arts and sciences. The list of scientists chosen for this honor is as follows: Luther Burbank, Dr. Crawford W. Long, Dr. Walter Reed, John James Audubon and Jane Addams.

The official news release of the Postoffice Department stated that the stamps are to honor "famous Americans who have achieved outstanding distinction in the arts and sciences." "Outstanding distinction" from what source? Without intending the least disparagement of the services rendered by the Postoffice "scientists," Heaven help us if this list of names is a true index of the public's understanding and evaluation of what science is and of scientific accomplishment in the United States.

One can not help wondering who the committee was, if any, that made the selection of "scientists." Certainly it could not have been referred to either the American Association for the Advancement of Science, or the National Academy of Sciences, which is the official adviser to the Government in such matters.

C. STUART GAGER

BROOKLYN BOTANIC GARDEN,
JULY 24, 1939.