How Plants and Animals Get Their Names

By O. A. Stevens[1]

For the last 30 years one of my pleasant and interesting duties has been to identify specimens. During that period, more than 10,000 letters, each accompanied by anywhere from one to more than 100 specimens, have been answered. Other thousands of identifications have been made in personal contacts.

Often I am embarrassed and the inquirer is disappointed, when I reply, "This plant has no common name". Common weeds have been the chief subjects, yet a surprising number of insignificant or even rare plants are received. Many books are content to furnish common names for only those plants which have such in general use. Some books have attempted to supply common names for all plants mentioned, but hundreds of these are mere translations of the scientific name.

It is too bad that people shy away from scientific names. The Latin veneer of construction seems to act as a deflector. Our independent, virile Americans prefer harsh or pointed names like "creeping jennie" and "ragweed." They have small appreciation of the musical, inflected languages of central Europe.

The scientist likes to invent names too. He is delighted to discover a new plant and to attach a name to it. His names, also, are often without rhyme or reason, but once attached, they are labels which can be recognized by any other scientist, be he Spanish, Norwegian, Turkish or Chinese. These scientific names are world wide in use. Not only are the same names used in all languages, but books in Russian, Japanese or other languages which use different characters, print these names in our regular type.

Scientific names are no bugbear to horticulturalists. They accept **Coleus, Canna, Chrysanthemum** and **Coreopsis** without hesitation. In fact they may be a bit inclined to be pre-Linnaean and use such names as "**Lilium tenuifolium** Golden Gleam," failing to separate the nominal scientific name from the horticultural variety. All of which merely illustrates that names are an answer to a need and vary in style with the requirements. Scientific names, however, have a rather rigid code of formation and use. Many of us go through the process of learning that they are stable and uniform in all countries and languages, only to learn later that they are still changing and that often the scientists do not agree on how some of the rules should be interpreted.

Back in 1753 (a bi-centenary will soon be due), a Swedish na-

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turalist published descriptions of all plants then known and for the first time used the binomial system throughout. Many of these had been used by earlier writers but not systematically. Five years later he did the same for the animals. This was such a clever idea that it is still the keystone of nomenclature. We usually call this man Linnaeus. His name has been variously written Carolus Linnaeus, Carl von Linne or Charles Linnaeus. He had only an artificial system of grouping plants which was soon discarded for the present system of families. He was a prolific writer and is worth careful study, but most of his publications are not easily accessible. A copy of the "Species Plantarum" of 1753 is worth about $100. Two modern reprints of it have been made, one in Germany in 1907, the other in Japan in 1934. A compilation of his publications shows 8,551 kinds of plants described by him from 1753 to 1776. In 1758, Linnaeus applied the same system to animal names in the tenth edition of his "Systema Naturae" and this is used by zoologists as a starting point for animal names. In this work 4378 species of animals were described, including 554 of birds and 2109 of insects.

The simplest names are monomial—cat, dog, plum, apple, pear, oak, pea and bean. When we wish to indicate a particular kind of plant or animal, we add another name, such as **lima** bean or **bush lima** bean. Scientific names are made in the same way but use a Latin terminology and place the chief name first, the modifying name second. On account of these two simple facts, people who are not accustomed to using these names regard them as foreign and difficult.

The first name is that of the genus, a group of closely related kinds of plants. This name has been adopted directly as the common name in **Aster, Asparagus, Arnica, Agave, Aloe** and many more. To designate a particular kind of aster we add the species name, **Aster multiflorus** (many-flowered aster), **Aster oblongifolius** (oblong-leaved aster), etc. The genus name is always written with a capital letter. Present rules recommend capitals for personal and certain other names when used for species. The present writer agrees with many other botanists that it would be better to use no capitals for specific names. This is the practise with scientific names of animals.

Linnaeus never visited America, but he received many new plants from it through other collectors and many of these were named by him, **canadense, americanum,** or **virginianum.** We need not be surprised that specimens or labels became mixed at times so that he named a plant from Asia, **"americanum"** or one from America, **"chinensis."** Frequently a species or a genus is named in honor of some person. Thus, **Fuchsia** is named for Leonard Fuchs, a very able German botanist who preceded Linnaeus by 200 years. **Cuscuta gronovii** is a species of dodder named for Gronovius, a botanist and very good friend of Linnaeus.

One difficulty, especially to those familiar with only the English language is that Latin words have various forms ac-

cording to gender and sentence position. Thus, we have **albus, alba** or **album,** and **canadense** or **canadensis** as species names, according to whether the name of the genus is masculine, feminine or neuter. Proper names may appear as **Smithia** or **Smithiantha** as the name of a genus; **smithii** or **smithianus** for a species.

It is easy to see the significance of such specific names as: **lanceolata** (lanceolate leaved), **alba** (white flowered), **repens** (creeping), **spinosa** (spiny), **tuberosa** (having tubers), and **esculenta** (edible). But sometimes one of these names loses its significance through the discovery of another plant which the name would fit still better. Much confusion would be caused by changing the names to fit the plant better, so botanists have agreed that once a plant is named, the name shall not be changed merely to get a more suitable name. As the number of known plants increases, it becomes more difficult to find simple and significant names. It must be admitted that some choices have been none too good, but we should be happy that some are suitable and some are interesting, then take the others as we find them.

Linnaeus had, as a matter of fact, a strict code of what sort of names he considered suitable. This is explained in one of his early books published in 1737, translated in 1938 (Codex Botanicus of Linnaeus). Of the hundreds of names which he established, many had been used before. Some of them can be traced back for many centuries, others have not been traced. Linnaeus gave lists of these older genus names, some 330 adopted from Greek writers, 170 from Latin, 150 more which had been used vaguely and 55 presented as new. Names from languages other than Greek or Latin he rejected. In later years, many such have been used.

Many botanists of the period 1800-1850 did change names by using some which they thought more appropriate. In 1867, the first Botanical Congress met in Vienna to establish rules to reduce the confusion which had developed. Later meetings have been held at intervals and committees have worked continually. An extensive code of rules has been published, but it is difficult to get agreement on some points. Some things still are not covered and some are difficult to regulate. On other points there are differences of opinion how the rules should be interpreted.

New kinds of plants are continually being discovered and named. A botanist who wishes to describe a new plant has pretty free range for use of names and manner of description. The name which he uses does not need to be first approved by a committee. He is free to make mistakes and often does so. One feature, now in the "International Rules" after years of argument, is that original descriptions of plants must be in Latin. Most of the early books were in Latin, many modern languages have been strongly influenced by it, so it is a sort of universal scientific language. Usually, this Latin description is brief and is repeated more fully in the language of the author.

One of the fundamental rules is that the name must not have

been used before for some other plant. This is a major difficulty and perhaps is responsible for the appearance of odd names which are **not likely** to have been used before, instead of familiar ones which probably would have been used elsewhere. New descriptions may appear in special books on a particular group of plants or those of a particular country, but the present tendency is to publish them in scientific journals. The best known of these are published by scientific societies, museums or governments, but there are hundreds of smaller or less known ones in the various countries. It is impossible for the ordinary botanist to be familiar with all of these. Even to index all the new names which appear, has been a task which has never been adequately performed. Obviously, it is best to leave the description of new species to persons in the large museums where the best collections of specimens and publications are available.

The majority of even scientific workers use the botanical names only as needed and are not particularly interested in the names. They become impatient when the names which have been in general use are changed. There are various reasons why changes are made from time to time. The first principle is that the oldest name beginning with 1753 is used. Frequently, some publication which had been overlooked or neglected, is found to contain names older than those in use, or the identity of some older known name is cleared up and it can be used.

In the last 15 years, many changes have resulted from a critical examination of original specimens. Descriptions had been copied from book to book and now we find that the early identification was in error. Modern descriptions of new plants indicate a particular specimen as the "type" of the species. When any question arises as to the identity of the name, this specimen is the final evidence. The older descriptions did not indicate such types and often it is difficult to decide what specimen should be chosen as the official type.

Another source of changes concerns the relationships of the plants. Our knowledge of plants continues to grow. New characters are discovered and the stability of various characters becomes better known. An old species is found to be composed of distinctly different forms, or two species which had been considered different are found to be essentially alike.

A genus is composed of related species, but how closely related they should be is a matter of opinion and of careful study. Only one species in a genus may have a certain species name, but this same name can be used for a species in some other genus. Currants and gooseberries are often considered to comprise one genus, **Ribes**. Some authors separate the gooseberries as a genus, **Grossularia.** If the two are separated, each can have a species **rubra**, but if they are united, the later **rubra** must take a different name, to avoid having two species of the same name in one genus.

Zoologists have a separate set of rules, though in general the same principles are followed. No two genera (plural of genus) of either plants or animals can have the same name. A genus of plants and one of animals may be alike, but this is avoided so far as possible. One difficulty is that slightly different spelling may make an entirely different name. Thus, **Ostrya** was the Latin name for ironwood, and **Ostrea** was the name for the oyster. A genus of "star-fish" is called **Asterias,** a name meaning star-like, as does also our word **Aster.** The genus of knotweeds is **Polygonum** and that of the angle-wing butterflies is **Polygonia.**

Botanists have arbitrarily rejected duplicate names, and use the next available specific name when such a combination results from application of usual rules. **Taraxacum taraxacum** for the dandelion, was one of these. Linnaeus had named it **Leontodon taraxacum,** but a later botanist divided **Leontodon** and used **Taraxacum** as a genus name for the dandelion. This was unfortunate as later developments have shown. Zoologists do not reject such combinations and many of them occur in animal names.

Zoologists use trinomials for geographic races and repeat the species name for the one first described. Thus, our eastern goldfinch is known as **Spinus tristis tristis** and the western form as **Spinus tristis pallidus.** Botanists have avoided trinomials, and write **Lilium philadelphicum,** var. **andinum** to indicate that our North Dakota wild lily is only a variety of the eastern wood lily. There are still considerable differences of opinion on this usage.

COST OF HARVESTING HAY

A Review

What are the costs in harvesting hay by different methods? E. W. Lamborn and Ivan R. Bierly of the New York State College of Agriculture recently asked this question of 51 farmers in Livingstone County, New York. They charged a labor rate of 46 cents an hour, tractor 50 cents an hour, trucks 65 cents an hour, 70 cents an hour for a two horse team. Blowers used were old blowers from a threshing machine operated by a tractor. They report the following costs per ton for moving hay from windrow to mow in 1944:

	Cost per ton	Investment in haying equipment exclusive of truck and tractor
Loader and wagon	$3.69	$286.00
Loader and truck	2.56	261.00
Buckrake	2.47	398.00
Buckrake and blower	1.62	342.00
Loader, wagon, truck and chopper	2.75	608.00
Buckrake and chopper	2.49	576.00
One-man baler	2.78	1,679.00
Three-man pick-up baler	3.44	1,275.00
Four-man pick-up baler	3.25	1,318.00

The acres of hay harvested per farm ranged from 34 to 67 acres. The distance to the haymow from the field ranged from a low of .19 mile to a high of 45 mile. (Reviewed by H. L. Walster)