SCIENTIFIC NAMES

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A SMOULDERING impulse to say something more about the wearisome subject of nomenclature suddenly burst into flame the other day when a friend of mine brought to my attention the two following names: *Brachyuropushkydermatogammarus grewinglii mnemonotus* Dybowski and *Microstomaticoichthyoborus bashford-deani* Nicholls and Griscom. The first is a little Amphipod crustacean; the second is a very small fish. If I work with the groups to which they belong, I shall have to handle these names, and I object!

Almost two decades have passed since in these columns[1] I raised the question: Whether there is not a better way of disposing of our nomenclatural trouble than by making it as burdensome as possible, and then making it permanent? Several stalwart defenders of the established order arose to condemn[2] in these columns a simplification that I then proposed, but not one of them ventured a word on the main question. There was no response at all in print, though I did receive a few commendatory letters. I suppose it was because my proposal seemed to threaten the sacred Law of Priority. Hands off it! Give it time. Stability and agreement were just around the corner.

Now there has been time to show what our efforts toward stability alone will do for us. The results are apparent to all. The load of scientific names becomes ever more burdensome and the nomenclatural experts seem to be wholly bent on making that load permanent. And in the name of all who need to use scientific names, and who are not systematic specialists, I object. I ask again whether simplification is not possible.

Biological nomenclature has grown burdensome in part because of increase of knowledge, but in a far larger part because of the artificial premium put upon the giving of names—a premium the like of which is not awarded in any other line of scientific work. Darwin put his finger on one source of our trouble when he wrote:[3]

> . . . I have been led of late to reflect much on the subject of naming, and I have come to a fixed opinion that the plan of the first describer's name being appended for perpetuity to a species has been the greatest curse to Natural History. I feel sure that as long as species-mongers have their vanity tickled by seeing their own names appended to a species, because they miserably described it in two or three lines, we shall have the same *vast* amount of bad work as at present, and which is enough to dishearten any man who is willing to work out any branch with care and time.

But that was only a beginning. The name of the genus also offered a point of attachment for memorials to describers. And it has been availed of fully. Existing rules and practices hold out such promises as this: Coin for a new genus any name that has not been published; couple it with the name of any valid species; give any kind of a description or no description at all; publish it—and you are entitled to write your own name after it, and all who come after you are expected to use it so forever. Was ever a promise of eternal remembrance so cheap!

Little wonder that generic names have multiplied beyond reason! Such devices as prefixes and suffixes enabled the genus-grinders to work faster, and when these began to fail, compounding them followed. Felt and Bishop pointed out that some "have been driven to the making of extremely long names in order to lessen the probability of creating synonyms!"

Nowadays the coining of new generic names has become so common that it has lost some of its charm, and the true experts in taxonomy are devoting themselves assiduously to the coining of new family and subfamily names, for, under the newer practices these, also, may carry forever the names of their inventors. The experts now go gunning for bigger game. And, at the present rate, we shall soon have in a large part of the system a subfamily for every genus. When these names represent new taxonomic discoveries they are perhaps excusable, but often they are merely *new names* applied to groups already set apart by previous workers.[4]

Subfamily names need not detain us here. They are the concern of the systematic specialist. Let those who want them have them. It is the scientific name of the species that we all use, the name by which it is known everywhere and in all languages alike. This name is in two parts, genus and species—like surname and given name of a person; this since the day of Linnaeus. Strange things have

[1] SCIENCE, 32: 296, 1910.
[2] T. D. A. Cockerell, SCIENCE, 32: 795, 1910; D. S. Jordan, SCIENCE, 33: 370, 1911; *et al.*
[3] Quoted in "Life and Letters of Charles Darwin," by F. Darwin, p. 334.
[4] If I be taken to task again, as I was recently by my friend Dr. Jordan (SCIENCE, 66: 14, 1927) for disrespect to taxonomists, "a signally unselfish and conscientious group," my complete answer is: Am not I myself, in a small way, a describer of new genera and species?

been happening to his simple helpful system of binomials. His names were pronounceable and fit. Forty years ago when I argued with some of my friends in favor of *appropriate* names, I was silenced with the dictum: "A name is a name and not a definition." His names were brief; but now in all the better-known groups, trinomials are the rule and quadrinominals are becoming common. I myself trudge along lonesomely at the tail of the procession. For me, if a form is distinct enough to bear a name at all, that name shall be a binomial. And I meet the queries of my taxonomic friends with another dictum: "A name is a name and not a treatise on relationships."[5]

Some editors are now so well disciplined in correct usage that they require the addition of the name of first describer throughout, in all the manuscripts that they accept for publication. When there are joint authors and tri- and quadrinomials this makes a fine string of names.[6] Some add to original describer's the name of the man who puts the thing in another genus than that in which it first reposed. I do not do this, and I justify my slowness with another dictum of my own: *A name is a name and not a memorial inscription.*

So, I agree that a name is a name. But, though a name is only a name it may yet be a helpful thing or a very positive hindrance. The two names quoted in my first paragraph are examples of the latter. They are far worse than anything pre-Linnaean.[7]

My point is not that names are so numerous—they must be as numerous as the species—but that they are so inanely foolish as to hinder the progress of biological science. How many species names there may be does not concern the general worker. He needs as many of them as there are kinds of plants or animals before him, and the others do not bother him. But the number of generic names does concern him; for if he has to learn a new genus name for almost every species, that name is no aid at all, but only an added burden on his memory. Furthermore, it is obscuring, not clarifying. The original purpose of the generic name was to tie the species up in convenient bundles so that the mind might the more easily deal with them. The general worker needs only enough generic names to cover readily distinguishable groups. Modern infinitesimally split genera, based on differences that only a specialist can see, tend to obscure affinities. The taxonomic specialist is apt to think of large genera as "unwieldy"; but the real unwieldiness lies in the excessive array of handles with which he supplies his little bits of intellectual luggage.[8]

In 1910 I tried to start a discussion of the problem of simplifying our nomenclature. I suggested numbering species; but numbering does not accord with our traditional habit of naming things. That was not a good suggestion. Let it pass. I now try again.

I suggest a return to simple binomials with fewer genera and a standard name list for the use of all who deal with plants and animals otherwise than as taxonomic specialists. Such a list would present the little crustacean mentioned in my first paragraph not as *Brachyuropushkydermatogammarus grewinglii mnemonotus* Dybowski, but as *Gammarus mnemonotus* and nothing more.

Let the existing system stand for the systematists. Let it grow and flourish. Let the splitters have their revel. The *mihi* itch is such a delightful disease, I would by no means deprive my worthy systematic colleagues of the pleasure they find in scratching. But let us have simpler names for common use.

In these pages I am not proposing a plan, but an inquiry to develop a plan. It is only by agreement that the present system came into existence. To say that biologists might not yet be able to agree upon something a little less distressing and less a hindrance to biological science would seem to me very like a confession of professional idiocy.

There are, however, four provisions I should hope for in the new undertaking:

1. A preliminary report to competent psychologists as to desirable and necessary name-limitation.

2. Cooperation between botanists and zoologists.[9]

3. Members-at-large in the name-choosing body, to secure a measure of uniformity.

4. Members serving only for the groups in which they are taxonomic specialists, to bring to bear a working knowledge of the group and of its literature and tradition.

5. Some better method of obtaining the opinion

[5] Whether Marcus Smith is first or second cousin to John Smith his name need not explain.

[6] Here are the up-to-date names of five species of bumblebees: *Cullumanobombus silantjeivi semenoir-tianshanskyi* Shorikov; *Pratobombus lapponicus kamtshaticus occultodistinctus* Shorikov; *Agrobombus solstitialis subbaicalensis insipidioides* Vogt; *Agrobombus agrorum parcuorum subdrenowskianus* Vogt; *Pratobombombus jonellus atrocorbiculosus sparre-schneideri* Vogt.

[7] If any one thinks that such monstrosities in names are isolated cases let him read the four pages of generic names derived from personal names in Palmer's "Index Generum Mammalium" (*N. Amer. Fauna*, no. 23, pp. 48–51, 1904): Asmithwoodwardia, Ernestohaeckelia, Ricardolydekkeria, etc.

[8] The true aim of taxonomy was well stated by J. Chester Bradley in SCIENCE, 66: 103, 1927.

[9] Without this, we who are ecologists may have to go on forever writing the names of plants one way and the names of animals another. Must we capitalize and parenthesize and eulogize first describers and last shifters in two ways, merely because the plant and animal taxonomists have neglected to get together? We do not like it. It is not rational.

of zoologists than the *viva-voce* vote of the crowded sessions of an international congress.

I speak for the conscientious teachers who seek to give their pupils some contact with biological literature. Confusion of names, absurdity of names, apalling length of names waste their time and dull the interest of their pupils. In some quarters it seems to be expected of the teachers that they shall meekly and apologetically explain to their pupils that all this foolishness is due to the vastness of plant and animal creation. But it is not so. The fact that there are more than a million species of animals in the world does not of itself necessitate that the bird in my hand shall bear a harder name.

I am well aware that it will be no easy task to find a way out of the existing confusion. Good judgment, expert knowledge, human sympathy, hard labor and long patience will all be required. When these have been applied we may hope for something better. It surely is not well to have scientific effort so organized as to reward mistakes and to preclude the elimination of errors.

SCIENTIFIC EVENTS

ENGINEERS IN AMERICAN LIFE

MEN of science are assuming a dominant position in American life, Lawrence W. Wallace, of Washington, executive secretary of the American Engineering Council, said in an address at the recent annual meeting of the American Society of Mechanical Engineers in New York. By supplementing with broad humanistic and scholarly interests the technical genius responsible for the "Machine Age," they are becoming a controlling force in culture and in politics no less than in commerce and industry, in finance, in education, and in national defense, Mr. Wallace asserted, making public the results of a survey of "Engineers in American Life" which he conducted in association with Joshua Eyre Hannum, research engineer of New York.

Of the 28,805 "notable living men and women of the United States" named in "Who's Who in America" (1928–1929), 2,858 were engineers and architects. They received 1,417 academic degrees in branches of learning other than science, as well as 2,497 scientific degrees. They are members of 1,138 associations, conferences, boards and commissions, half of which are non-technical.

They hold 4,785 official positions in 3,928 organizations, of which number 2,993 are industrial and commercial companies. They occupy the position of president in 1,128 industrial and commercial organizations, 72 engineering firms, 68 banks and trust companies and 23 colleges and universities.

Among these 2,858 engineers and architects there are, or have been, 10 governors, 13 members of Congress, 2 members of the Cabinet, and the president of the United States. Five hundred and eighty-eight of these men hold 905 memberships in Phi Beta Kappa, Phi Kappa Phi, Sigma Xi and Tau Beta Pi, the four honorary fraternities in which membership connotes outstanding achievement in various fields.

The men studied hold membership in 1,138 associations, commissions, conferences, and the like, half of which are non-technical. The activities of these organizations touch practically every interest of mankind, and they are not restricted geographically, but are located in many parts of the world.

Nearly 40 per cent. of the group are officers of industrial and commercial companies. Of the entire group, 37.1 per cent. are available for consultation, 34.8 per cent. have made contributions to scientific and technical literature and 6.9 per cent. have been editors of technical papers.

In the fields of public service scientific men have made important inroads. Over one half of the men under consideration have served or are serving municipal, state or federal governments. City governments have been served by 208 of these men. Among them have been 28 city engineers, 18 mayors, 6 city managers, 3 chiefs of police and 2 superintendents of city schools.

State governments have engaged the efforts of 269 of the group, 59 of whom are now in state work. There have been 10 governors, 5 legislators and a state district attorney among them. The present governors of Delaware, Utah, Wyoming, New Jersey, Alaska and Alabama are engineers. The governors of North Carolina and Indiana hold engineering degrees.

In our federal government, the president of the United States, the secretary of the interior, the secretary of commerce and the director of the budget are among the men of science holding important positions. To name the various branches of the federal government in which engineers hold responsible offices would be to catalogue the activities of the government. Suffice it to say that no other group is more influential in shaping the destiny of the nation.

DENTAL COUNCIL ON MATERIA MEDICA AND THERAPEUTICS

THE American Dental Association announces the formation of a proposed council to deal with dental materia medica and therapeutics.