Letters to the Editor.

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The Word "Scientist" or its Substitute.

I HAVE long thought that it is desirable, but perhaps not possible, to control the use of the words "science" and "art" and derivatives from them. The popular tendency is to make rubbish both of the original words and of the adjectives derived from them. Thus "science" is definitely used to describe the skill of the boxer, the text of Aristotle's writings, the highest mathematics, the twaddle of Mrs. Eddy, and the elements of chemistry.

In hopeless effort to define science it used (a hundred years ago) to be asserted that every art is based on a science and every science has its related art—a piece of glib and baseless assertion. It is Cicero, I believe, who says "*Scientiæ mentis artes*," the sciences are the arts of the mind, whatever "arts" may be. The French speak of "*les Sciences*," including therein all the "ologies." In England we like to make-believe in an obscure essence or pervading entity which we call (when we are journalists) "Science" with a large S. Probably the historic and most luminous use of the word "science" is that in the plural, as in "*l'Académie des Sciences*." The British Association is for the advancement of *science*, not sciences, as it should be, whilst the Royal Society did not three hundred years ago use that word, but declared that it aimed at the promotion of "natural knowledge"—that is, knowledge of Nature, as distinguished from human tradition and Divine revelation.

We get some glimpse of a synonym for the word science when we find Cicero writing "*Physiologia nature ratio*," which must be translated "Physiology, the ratio (or 'reasoned story') of Nature." All the "ologies" or branches of science are ratios or reasoned stories of those sciences. But I can find no word which will serve to distinguish one who deals with many branches of science or to name a body of men dealing with many distinct sciences. It is easy to name those who take up this or that science, as geologist, phytologist, zoologist, chemiologist (chemist), electrologist (electrician), etc. But we soon get into a muddle, even here, since words derived from *φύσις* have been insanely perverted in meaning during the past three hundred years—for example, *physic* and *physics*, *physicien* and *physician*, as well as *physiology* (this last to mean not "natural history," as it should, but the study of the activities of the organs of animals and plants).

I hope NATURE will continue to refuse to use the word "scientist." Its formation can be defended, it is true, as parallel to that of "artist." But the example of the word "artist" gives us no encouragement, for it is the most vague and ill-used word in our language. All sorts of mysterious qualities are claimed for "the artist," and any impostor can defend his claim to be "an artist," and to worship art with a big A. We shall have others saying they "stand for" science with a big S and calling each other "Scientist." The eminent scientist Barney Bunkum is already flourishing in the United States and in English newspapers. I think we must be content to be anatomists, zoologists, geologists, electricians, engineers, mathematicians, naturalists (that last is a term I like and wish to use). We cannot find a name

to join all the followers of different branches of science, but I think that "rationalist" rightly designates those who, in their inquiries into the unknown in whatever field, strictly follow the scientific method.

It is well to remember in this connexion what Clifford wrote in one of his essays: "There are no scientific subjects. The subject of science is the human universe—that is to say, everything that is, or has been, or may be related to man."

What then *can* we mean by calling a man a scientist? We cannot mean that he studies or pursues any *special* subject. Every subject can be the subject of science. "Science" and "scientific," of course, have reference to the method and habit of mind. Our "man of science" is a man who makes use of and cultivates a special habit of mind or method which is known as the scientific method or experimental method. Assuredly this is *not* what the journalist means when he calls a person "an eminent scientist."

In old times the word "philosopher" was quite properly used for those we now call men of science: they were called "philosophers" or sometimes "natural philosophers," but custom—the most absurd jade we tolerate—actually nowadays restricts "philosophy" to speculations about metaphysics. Hamlet's "philosophy" was wider and all-embracing. The founders of the Royal Society called themselves "Philosophers." I am afraid that word will not do, to-day, for what is wanted; and I feel pretty sure there is not one which will. I should call myself alternatively a philosopher, a natural philosopher, a naturalist, or a rationalist. Rationalist is really the best designation. All men of science are rationalists, but many shrink with fear from the word, since they have been told that the devil himself is a rationalist. It is, however, a just and honourable title. On the other hand, "scientist" has acquired—perhaps unjustly—the significance of a charlatan's device.

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In my little book on "Notes on the Composition of Scientific Papers" I have defended the use of "scientist": it is quite a normal word, such as artist, economist, etc. Against it is the dislike of all new words or spellings; they are contrary to our habits. But there is more than this: in England (especially as compared with Germany or Scotland) there has been a certain prejudice against science as a *profession*. Many of our great men (*e.g.* Darwin, Rayleigh, Clerk Maxwell, etc.) have been great amateurs; and the generations bred upon letters only (*e.g.* Swift) have regarded science as too arid for exclusive culture. The amateur is saved from being narrow or inhuman. So there has been an unconscious antipathy to science as a calling or profession. But I am speaking of our prejudices—remnants of the past—which now are cobwebs, and no more. I should accept the word were I in your place. NATURE has set a good example in another very important—far more important—linguistic matter, namely, the use of "*fact*" as distinct from opinion, or inference, or axiom, or principle, or truth, etc., in the sense of general statement founded upon (assumed) facts. We collect our facts, and upon them are built fallible conclusions or laws, which not a few contributors call also "*facts*." We must keep the word fact for the several events, and call our inferences opinions, conjectures, hypotheses, etc., and ultimately, when relatively certain, theories; theory is our highest scientific category. To mistake inferences or axioms for facts has been a curse of science.

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