and Java. Its seeds are said to be larger. Such differences might be due to environment.

Aside from these two notes, no mention of other mangosteen variations has been found in the literature.

This unusual asexual reproduction in the cultivated mangosteen accounts for the curious uniformity in its fruits wherever grown, and this famous fruit seems to be of one variety only.

Further anatomical studies of the mangosteen flower, fruit and "seed" are being continued at the Puerto Rico Experiment Station of the U. S. Department of Agriculture.

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AND/OR OR ANDOR

THE use of the form "and/or" in legal practice is well established. In recent years I have noticed an increasing tendency for writers of scientific papers to make use of it. The question of the need for such a form of expression I do not wish to raise here, but the presence of a symbol of this kind upon the printed page gives to it an untidy, unfinished and objectionable appearance as though it were marked copy subject to revision.

The thought has long plagued me that in view of the apparent absence of any word in the English language of "andor" such a word might well be introduced and defined to convey the precise meaning of "and/or" and thus clear the page of the unnecessary and unsightly virgule which mutilates the typed line.

This subject may be enlarged upon to great length and an extensive review made of numerous past diatribes against the use of "and/or." My purpose here is to bring to attention a suggestion for such consideration as it may merit.

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WHAT IS SUMMER?

AT this time of year one often reads among scientific notices that the summer solstice occcurred at 2:35 P.M. on June 21, or at some other time as the case may have been, and that this event marked the beginning of summer. The local paper enlarges on this news item, leaving out the solstice idea, the editor not being quite sure what the term means, but announcing, in language borrowed from the births column, that summer arrived yesterday afternoon at 2:35. Sometimes the paper says that summer then began "officially," and attributes the determination of the time somewhat vaguely to "the astronomers." Analogous notices appear about December 21, when we are told that winter "came in" at 7 A.M., mildly or violently as the weather may have determined. The same oracle announces at the equinoxes the "official" beginnings of spring and fall. With this idea, that summer and winter begin at the solstices, and spring and fall at the equinoxes, I absolutely disagree, and, as Chesterton says, with a peculiar ferocity.

Certainly the equinoxes occur about March 21 and September 21, and at those moments the center of the sun is in the plane of the earth's equator. Then the nearest day and night are equal (except for a possible difference too small to be noticed) all over the earth, except at the poles, where the sun may be seen on the horizon. Certainly at the summer solstice we have the longest day of the year, and the sun at noon is higher in the sky than at noon on any other day. Certainly, then, land and sea and air, in our latitudes, are gaining heat most rapidly. But I do not think that summer begins then. June 21 is not the beginning of summer, and no one, by calling it the beginning officially, can make it so.

In the first place, our government can not determine what a common word is to mean. Also there is no "official" whose duty it is to define the names of the seasons, and if there were such an official he could not perform that function. A government astronomer, I suppose, determines the time of the solstice. His work ends when that is done. Writers, editors and calendar makers, wishing to dramatize the event, announce it as the birth of the season, which it is not.

Summer in the Saxon English which we speak by inheritance means the warm season. A dictionary definition is "the hottest or warmest season of the year, including June, July and August in the northern hemisphere." For convenience we make it correspond to whole rather than fractional months. In these latitudes this is reasonable, too, because about July 20, near the middle of these three months, is the hottest time of the year. Further north, of course, the peak of summer is earlier, and it is still more absurd to say that it begins on the longest day. June 24 is Midsummer Day in old English custom, the Feast of St. John the Baptist. You could not tell a farmer that the longest day is the beginning of summer. He would know better. Moreover, so people have written English in poetry and prose. "No price is set on the lavish summer, June may be had by the poorest comer." June, not just June 21 to 30. The period from summer solstice to autumnal equinox is obviously not summer.

It might indeed be convenient to have a term for that period. Such a term should not do violence to nature and the common meaning of useful words. We could call it the third quarter. Then the second quarter would be the time from the vernal equinox to the summer solstice. In this way the first quarter of this year would take in a few days—December 21 to December

31—of last year, and this is awkward. We stupidly begin our year at an arbitrary and unreasonable time. It is as if we passed the solstice without recognizing it, and only began our year when, ten days late, we first noticed the lengthened day. But the quarters are reasonable divisions, marked with astronomical precision, and not to be designated by terms already in use with a different meaning.

I resent the arrogance of those who say that the everyday and historic meaning of a common word is wrong. They are like those small girls who read Emerson's poem, "The Mountain and the Squirrel," in their fourth readers, and noted that he referred to the squirrel as bun. They announced at once that we were wrong in using bunny to call our pet rabbit. We grant now that the solstice comes on June 21, and we know what the word means. We do not think the solstice marks the advent of summer, and we will not use the word summer to denote the third quarter of the year.

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SCIENTIFIC BOOKS

SIR JOHN CUNNINGHAM MCLENNAN

Sir John Cunningham McLennan, a Memoir. By H. H. LANGTON. With a chapter on his scientific work by E. F. BURTON. Toronto: University of Toronto Press. 1939. $2.50.

THE biography of a scientist and a man of great achievements is always welcome and of interest. In this age of the dominance of physical science (a true luxury age for the physicist) in the light of things that have been and perhaps in the light of the days to come, the biography of a man like Sir John is of more than passing interest. Very few of the modern generations of physicists realize what were the conditions in our laboratories in the western hemisphere less than fifty years ago. It is to the sterling leadership, the untiring enterprise and zeal and the scientific idealism of men like Sir John C. McLennan that we owe the present status of research and learning in North America. Starting in an impoverished and lay community with no support and little encouragement Sir John in some thirty years educated this community to a true appreciation of science, built one of the leading physical research laboratories in North America and contributed his share to the fund of knowledge. How this was done and how Sir John himself developed as a physicist is covered in the first chapters of the book, which essentially mark episodes in his life under the titles, "Early Life," "The Department of Physics," "The Alumni Association" and "The Physics Laboratory." The subsequent episodes in this rich and active life are "The War," "Research, Public and Academic Activities after the War" and "The Last Years." In view of the present world situation the relations of science to national defense as illustrated by the activities of Sir John furnish valuable reading. It may be of interest to point out that the magnetic mine so much discussed in recent months was invented and developed as an anti-submarine measure by Sir John. With these mines placed in defensive positions there were gotten one enemy cruiser, three destroyers, three mine sweepers and two submarines. Incidentally, one of these submarines had successfully negotiated all defenses in the entrance to Scapa Flow only to blow up on Sir John's magnetically controlled mine, thus saving the fleet anchored there serious losses.

An Appendix by Professor E. F. Burton lists the scientific achievements of Sir John. Of these the most valuable were some of his early researches on electrical discharge in gases, the discovery of the earth's penetrating radiation and the isolation by means of an ice ionization chamber on Lake Erie of what is now called the cosmic radiation, the studies on spectra and ionization potentials, the successful construction of the world's second cryogenic laboratory and his discovery of the origin of the green auroral line. In a final Appendix there is a complete list of Sir John's published works.

The biography is historically accurate and well documented. The style is terse but readable, the material is well organized, and the contents are largely factual. No attempt at character analysis is made, although a chapter entitled "Characteristics" describes Sir John in terms of the author's impressions and quotations from his contemporaries.

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THE MICROSCOPE

The Microscope. By ROY M. ALLEN. iv + 286 pp. 82 figs. 17 plates. New York: D. Van Nostrand Company, Inc. 1940. $3.00.

BOOKS dealing solely with the microscope in general are fairly numerous; those that cover the subject and further attempt to describe methods of preparing materials for microscopical examination are less common. The text under review belongs in the latter category despite the statement in the preface that it is "devoted wholly to the theory and manipulation" of the microscope. Actually, however, only 177 of the 286 pages are strictly devoted to microscopes and their operation.

The author, a consulting microscopist and former president of the New York Microscopical Society, ex-