practically unknown to any scientific man before May, although the artificial appearance of the clearing in the pines had been recognized as the site of a settlement from the time that Flagstaff was settled by white people."

If the author would refer to the Memoirs of the American Anthropological Association, (1918) volume V, number 4, he would find on page 115 the ruin described as pueblo 142 and figured on plate X, figure 1. In a manuscript of an intensive survey of the ruins of the San Francisco Mountain region which has been in the hands of the Bureau of Ethnology for the past year and a half awaiting publication, this ruin is again described, furnished with a measured plan and given a name. Indeed, Dr. Fewkes undertook the excavation of the ruin at the suggestion of the writer and used the measured plan referred to above in the early part of his excavations.

Dr. Fewkes says further, "The name 'Elden Pueblo' was given to the ruin by the author on account of its neighborhood to Elden Mesa. . . ." The name "Elden Pueblo" is ill-advised because in the manuscript of the survey referred to above, which is in the hands of Dr. Fewkes, a pueblo ruin west of Elden spring is called the *Elden Pueblo* and appropriately so because this pueblo is on the very flanks of Elden Mountain, while Fewkes's "Elden Pueblo" lies nearly a mile away, and a quarter of a mile from the conspicuous crater of Sheep Hill. Therefore, the writer of the survey has called Fewkes's ruin the *Sheep Hill Pueblo*. In the Memoirs of the American Anthropological Association, referred to above, a third site is called the *Elden Spring Pueblo*. Surely it is confusing to the literature to give another pueblo the name of Elden.

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PRESBYOPIC VISION AS AN INDEX OF LONGEVITY

THE article on "Age of Presbyopic Vision as an Index of the Longevity of Primitive Man," in SCIENCE of October 29, seems to me to have overlooked one vital point. Any character to be of survival value, either positive or negative, must appear before the close of the reproductive period. Presbyopia appears after the reproductive period is practically past, hence can not affect the next generation. What occurs to parents after their offspring are independent of them has no effect on the survival of the race. This is illustrated by many animals that die in producing their young, as is the case with the salmon.

It would seem more logical to connect the age at which presbyopia appears with the end of the reproductive period. Any family in which it appeared before the offspring were independent would be at a disadvantage and would tend to be eliminated. Thus natural selection has prevented presbyopia appearing before the middle forties. Whatever theory may be correct, it is a fact that these two events occur at practically the same time.

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SIMPLIFIED SPELLING

WHY not take the obvious additional step to that proposed by Maynard M. Metcalf for "A Simplified Indication for the Consonant Sound Represented by the Letters TH" (SCIENCE, 1670, page 650) and drop the *u* that invariably follows *q* in English!

A. H. BABCOCK

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SCIENTIFIC BOOKS

Astronomy. By RUSSELL, DUGAN and STEWART. Vol. 1—The Solar System. (470 + xxi.) Ginn and Co.

THIS work is sub-titled "A Revision of Young's Manual of Astronomy." Young's text-books on astronomy were about as near perfection as they could be at the time they were written. His "Manual" is extremely well adapted for a first, general college course, and his "General Astronomy" is as admirable for the student starting on the more serious study of the subject. All that was needed for the present time was a revision of his works to bring them up to date, to give an account of the more recent advances in the science. This the authors, the successors of Professor Young at Princeton University, have undertaken.

The revision of the "Manual" has resulted in a more extensive work than the original, so that we have before us a text, as the authors state, "intermediate between this and the 'General Astronomy.'" They further state that "extensive changes have been required by the progress of the science; the book has been practically rewritten and inevitably increased in length." On account of the increase in length the work is now issued in two volumes. I have been informed that the second volume is in press. The first has just appeared.

The division of the work into two volumes is advantageous for two reasons: first, in that the subject-matter of the first volume is of the more stable sort and will not need revision for many years; and the subject-matter that is in the most rapid state of flux is to be in the second volume, so that the work can be kept up to date by fairly frequent revisions of the second volume only; second, the division fits admir-

ably with the way the subject is presented here in the University of California. Our first course is practically on the solar system, which is covered by the first volume, and our second course is on modern astronomy, which is undoubtedly covered by the second volume soon to be issued.

This first volume is extremely well done. The only adverse criticism I have to make is that it is not quite complete. Undoubtedly the second volume furnishes the material some of which I would like to see in the first volume. Even at the expense of a slight repetition of this material to be placed in the second volume, I would have had a chapter treating of the solar system in the sidereal universe. Such a subject, for instance, as "The Sun's Way" should not be omitted from a volume on the solar system. Space for such an additional chapter might well be gained by shortening the chapter on "Celestial Mechanics." Much of the subject-matter of this chapter is quite beyond the grasp of those for whom this work is intended and finds its more appropriate place in the "General Astronomy."

In connection with this chapter on "Celestial Mechanics" I can not refrain from mentioning the smile with which I read on page 275, "The calculation of an orbit from three observations takes a skilled computer two days or sometimes less. The novice may take as many weeks, most of his time being occupied in finding and correcting mistakes which are only too easy to make." With the last sentence I heartily agree, but would add that often these weeks of struggle are due to erroneous observations which, alas, are entirely too frequent. The first sentence of this quotation I would have written, "The calculation of an orbit from three good observations takes a skilled computer a few hours."

The book is well balanced and very up-to-date, as is evidenced by the introduction of such items as the pendulum observations in a submarine.

I am sure that the second volume, which will contain many subjects upon which Professor Russell is an eminent authority, will be of the same degree of excellence as this. The whole work will be not only a superb text-book, but also a regular authoritative handbook for the professional astronomer.

The authors have wisely followed Professor Young in giving numerous examples for the student to solve. A most welcome and valuable addition is the frequent lists of references.

I have noted a few very minor corrections which will be sent directly to the authors.

The book is well illustrated and beautifully printed.

R. T. CRAWFORD

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History of the Origin and Establishment of the Inquisition in Portugal. By ALEXANDRE HERCULANO. Translated by JOHN CASPER BRANNER. Stanford University Press.

DR. JOHN CASPER BRANNER, professor of geology in Stanford University for thirty years, and for three years its president, was for nearly half a century in one way or another connected with the Geological Survey of Brazil. In this capacity he acquired a very thorough knowledge of the Portuguese language, in which he published several important works.

After retiring in 1916 from active work in the university, Dr. Branner devoted himself mainly to writing, and among other things he made a translation of one of the most important of Portuguese historical works, Herculano's "History of the Inquisition."

Dr. Herculano gives a just and sane account of the most hideous period in the history of his native country, supported throughout by documents, and forming as a whole the strongest possible arraignment of the form of intolerance called religious, and of the beastly efforts to destroy heresy, current in the sixteenth century. It is much to the credit of modern Portugal that its scholars are free to tell the truth, which "Absolution" and "Patriotism" would like to conceal.

DAVID STARR JORDAN

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A MICRO METHOD FOR ESTIMATING THE RELATIVE DISTRIBUTION OF GLUTATHIONE IN INSECTS

HOPKINS[1] in 1921 isolated a constituent of cell protoplasm responsible for the nitroprusside reaction in animal tissues; this nitroprusside test had been previously applied by Heffter[2] and Arnold[3] in proof of the presence of a sulphydryl group (SH) in the cell. According to Hopkins, the substance which he isolated and named "glutathione" is a dipeptide and contains glutamic acid and cystein. This dipeptide is autoxidisable; it acts readily under varying conditions either as a hydrogen or oxygen acceptor, promoting cell oxidation and reduction under factors present in the tissues, and presumably has actual functions in the chemical dynamics of the cell.

During the writer's studies with arsenicals, the effect of the latter upon respiratory metabolism of insects indicated that in general the oxygen consumption and carbon dioxide production were profoundly

[1] Hopkins, *Biochem. Jour.*, 15, 286, 1921.

[2] Heffter, Med. Naturwiss Arch. 1, 81, Maly's Jahresb. 1908.

[3] Arnold, *Zeitsch. Physiol. Chem.*, 70, 300 and 314, 1911.