tirely unconscious of this fact. Later, in 1919, "hormones" (again without identifications or measurements) are added to Goldschmidt's theory of sex-development as extended to vertebrates. And, finally, by 1923, in this latter field even the word *metabolism* (no measurements) is sometimes agreeably utilized. Such definite progress is of course gratifying to the writer.

From the preceding it may appear that the writer has contributed something to the "quantitative theory of sex." Personally, I am fairly indifferent toward "acknowledgments" in favor of myself. But if it is desirable for the "Columbia group of Drosophila workers who solidly opposed" Goldschmidt's theory of sex-determination now "to make a frank statement" of its acceptance, I can merely suggest that the little matter of acknowledgments might well be extended beyond the Columbia group.

It remains to note that the past fifteen years have provided so much advance in the problem of sexuality, from contributions of so many distinct kinds, that it is probably too much to expect any single individual to be aware of the total advance. At any rate no one gives evidence of knowing more than a fraction of the available data. Perhaps the interests of the subject and of individual investigators of it will be adequately served if the main lines of progress are known, and if a part is not too often mistaken for the whole.

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GOLDSCHMIDT'S article on "The Quantitative Theory of Sex" in SCIENCE for September 24 recalled to the writer strongly, though indirectly, phenomena of sex that deserve careful and general attention.

Extended observations on human material, body, crania, bones, organs, appendages, show that sex in man manifests itself not as a uniform but as a variable character. And its variability compares with that due to other fundamental factors, such as age, race, etc., and with that of individual organic features in general.

The female as well as the male sex in man, under even the most normal conditions, is a broad stream of variations, so that one woman is by no means sexually equal to another woman, or one man to another man. The ranges of sexual variation in individual features, as well as that of sexuality as a whole, give, if we have sufficient numbers, regular binomial curves of distribution, with their usual characteristics; and these curves in their extremes do not merely approach but overlap each other. Thus there are females of hyper- to hypo-feminine, with males of hypo- to hyper-masculine grades, and the least feminine individuals stand no more apart but interdigitate with or overlap, in many respects, the least masculine, so as to be separable perhaps only by the main sex organs; while the most masculine and feminine are decidedly farther apart than the large majority, who may be termed more or less orthosexual.

Perhaps the simplest demonstration of these facts, which must be of much genetic as they are of other significance, is obtained on the human skull and bones. Taking the individual larger bones of the skeleton, the pelvis, the lower jaw, or the skull, an experienced worker will be able to positively identify as to sex from approximately 50 to 93 per cent. of the specimens, according to their kind. The pelvis, and the skull with its lower jaw, give the highest proportion of identifiable cases, yet even of these on the average about seven in each hundred present features either so intermediate that the sex remains uncertain, or approaching so close to those of the other sex that an erroneous identification is possible. Even where the complete skeleton is present there are still two to three cases in every hundred in which it is impossible to be certain whether the remains are those of a male or a female. On the other hand there are specimens of which the sex is most patent, is in fact exaggerated; while a large majority range between these two extremes. And what is true of bones is true of brains and probably of all other organs, except the genital; though even in the latter there is ample variation.

The subject of sex, seen in this light, rouses much thought; but the object of this note is merely to call attention to the broadness of the unit character of sex; to the merging of the male and female characteristics on the confines of their normal variation; and to the similarity of their behavior with that of all other organic manifestations in man, as well as, doubtless, in other living forms. Perhaps this may call for a re-atunement of our views on the sex question.

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SOME NOTES ON THE "ELDEN PUEBLO"

IN a recent number of SCIENCE (November 19, 1926) among the proceedings of the National Academy of Sciences meeting at Philadelphia, Dr. J. Walter Fewkes has presented a paper on the "Elden Pueblo" which contains several confusing statements. These have to do with its discovery and selection of the name. The author writes of the ruin: "The object of the communication was to announce the discovery by archeological methods, of a pre-historic ruin which had never been described. . . . It was

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!

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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-