Long life to the moon for a dear noble cratur
Which serves for lamplight all night in the dark,
While the sun only shines in the day which by natur
Wants no light at all as ye all may remark.

was merely a "manufactured story" without antecedent, it seems pertinent to remark that this idea of the *independence* of daylight and the sun is of great antiquity and somewhat common in early civilization.

For example, in the Hebrew story of creation we find:

. . . God said, Let there be light: and there was light. And God saw the light, that it was good; and God divided the light from the darkness. And God called the light day, and the darkness he called night. And the evening and the morning were the *first* day. (Genesis I., 3–5.)

On the second day God created the land and water and on the third day the flora. Not until the *fourth* day did God create the sun (Genesis I., 14–18) "to *divide* the day from the night," "to be for a *sign*," "to *rule* the day" and incidentally "to give light upon the earth." Also, God set the "lesser light (the moon) to *rule* the night." It also gave light upon the earth. Evidently, the "Irishman's astronomy" and that of the South American Indians are in strict and complete accord with the concepts of the author of Genesis. Quite clearly, the day was light before the sun was set to "rule" it, but the night was dark before the moon lighted it. It is not to be presumed that we can attribute any Irish wit to the author of Genesis, but it may be that the Irishman was a good orthodox churchman and, in common with many others, accepted the scripture as his authority in science. However, the Indians' concept must have been of independent origin.

Seriously, does it not appear that the ancients, even in a high degree of civilization, had only very vague and confused ideas of the relation between *light* and the sun?

Simple as it may appear to us to regard a luminous body as the source of some influence, which, acting on the eye, excites the sense of sight, much doubt appears to have existed among those who first investigated the subject as to whether objects become visible by means of something emitted by them, or by means of something issuing from the eye of the spectator.[1]

Some of the Greeks conceived vision as due to something (light?) projected from the eye.

They all [some of the Greeks] had a confused notion that as we may feel bodies at a distance by means of a rod, so the eye may perceive them by the intervention of light. It is very remarkable that this strange hypothesis held ground for many centuries, and little or no progress was made in the subject till it was established on the authority of Alhazen . . . in the *eleventh century A. D.*, that the cause of vision proceeds from the object and not from the eye.[2]

Aristotle maintained that light was not an emission from any source, but a *mere quality of a medium*.[3] This concept appears to be in substantial accord with the first light of the author of Genesis.

In spite of the existence of sun worship among many savages, it appears that our everyday commonplace concept of the sun as the primary *source* of light is of very recent origin among civilized peoples, and no astonishment need be occasioned by finding savages who have not grasped it.

Irwin G. Priest

Washington, D. C.,
April 20, 1921

A Section of the American Association on the History of Science

To the Editor of Science: As one of a group interested in the formation of a section on the history of science, I would venture to suggest that the inclusive nature of the designation—History of Science—is well illustrated by the use of the word "science" by the parent organization. Surely a section has the same right to include historical, philological, and other sciences, which touch the history of science under the designation—History of Science—as the parent organization has in its use of the term. The history of science touches diverse fields, and as this

[1] Preston, Theory of Light, 3rd Ed., p. 2.
[2] Preston, p. 5.
[3] Preston, p. 4.

subject becomes more intensely pursued in American Universities the contact with philology, anthropology, history, and allied subjects will increase. To group "philological science" with "history of science" is absolutely unnatural; it has an implication, apparently, that the history of science is to be studied from the philological standpoint. No one would question that philology does frequently contribute, but it can hardly be said to represent a fundamental method in the history of science.

History of science, using science with the inclusive meaning as in the title A. A. A. S., is surely the proper name for the new section now under way.

LOUIS C. KARPINSKI.

SCIENTIFIC BOOKS

The Crisis of the Naval War. By Admiral of the Fleet, VISCOUNT JELLICOE OF SCAPA, G.C.B., O.M., G.C.V.O. 259 pages; 8 plates, 6 charts and appendices. George Doran Co. 1921.

This is a companion volume to Admiral Jellicoe's "The Grand Fleet, 1914–1916" which was reviewed in these columns.[1] The meeting in battle of the fleets of Great Britain and Germany was in its essence, a try-out of scientific methods of annihilation, as developed by the leading scientific nations of the world. It was said of the earlier volume that the book might aptly carry as a sub-title "Science Afloat up to 1916."

The present volume gives developments during 1917. It is not the story of a great fight like Jutland; but of undersea warfare, in which the submarine, like an assassin, struck from behind or below. Warfare on the sea had changed materially; and battleships needed screening from torpedo and mine, equally with transport and merchantman. One may well ask at this point, "Was Jutland" (in some respects the greatest naval battle ever fought; but on the whole the least decisive and most unsatisfactory) "the last great sea fight?" It seems likely; and the long line from Salamis down, draws to an end. The decisive conflicts of the future will be fought by aerial squadrons.

The present volume contains 12 chapters. The first deals with Admiralty organization and tells of the changes made in 1917. The Admiral believes that specialists (which means scientific experts) should be *part* of the staff, not just attached.

He says:

> In the Army there is, except in regard to artillery, little specialization. The training received by an officer of any of the fighting branches of the Army at the Staff College may fit him to assist in the planning and execution of operations, provided due regard is paid to questions of supply, transport, housing, etc. This is not so in the Navy.

He proceeds to show that naval officers are quite a different order of being from land officers. Further discussion of this view may be omitted here. But the Admiral preaches sound gospel, so far as men of science are concerned, when he says:

> Human nature being what it is, the safest procedure is to place the specialist officer where his voice *must* be heard, that is, give him a position on the staff.

Some rather forceful remarks follow to the effect that various divisions are not to work in water-tight compartments, but must be in close touch with one another.

We notice that in the Admiralty reorganization,

> The well-known electrical consulting engineer . . . has consented to serve as director of Experiments and Research, at the Admiralty—*unpaid.*

We italicize one word and refrain from comment.

Chapter II. gives the general features of the Submarine Campaign in the early part of 1917. We are let in on certain state secrets; such as,

> "Experienced British officers aware of the extent of the German submarine building program, and above all aware of the shadowy nature of our existing means of defense against such a form of warfare" realized that the Allies "were faced with a situation fraught with the very gravest possibilities."

[1] SCIENCE, N. S., Vol. L., No. 1279, pp. 21–23, July 4, 1919.