moot point, *cf.* the remarks at the close of the article on the subject in the Encyclopedia Britannica.

Several observers have reported hearing such sounds during the very brilliant auroral display of May 14. I could not detect any such sounds on this occasion, doubtless owing to the proximity of a large city from which the volume of sound, even at 3 A.M., is quite noticeable.

I desire to place on record, however, certain earlier experiences under almost perfect conditions of isolation and quiet. While in charge of the Labrador station of the Lick Observatory-Crocker Eclipse Expeditions of 1905, much of the work of adjusting the instruments was necessarily done at night. The station was located at Cartwright (latitude +53° 42′), and auroral displays were frequent and bright during July and August. On several nights I heard faint swishing, crackling sounds which I could attribute only to the aurora. There were times when large faintly luminous patches or "curtains" passed rapidly over our camp; these *seemed* to be close and not more than a few hundred feet above the ground, though doubtless much higher. The faint hissing and crackling sounds were more in evidence as such luminous patches swept over us.

Heber D. Curtis

Allegheny Observatory,
August 10, 1921

LAWRENCE'S WARBLER

To the Editor of Science: It may be worth while to record the presence of the rare *Vermivora (Helminthophila) lawrencei* (Herrick) in Lexington, Virginia, on May 14. The warbler was observed sitting on a telephone wire less than ten yards from the porch of a house just on the outskirts of town, and its conspicuous black throat patch and white wing bars served to fully identify it, and differentiate it from *V. pinus* and *V. chrysoptera,* of which it is supposed to be a hybrid. Chapman speaks of it as much rarer than Brewster's warbler, *V. leucobronchialis,* the other supposed hybrid of these species, and says that less than a dozen specimens have been recorded.

Jas. Lewis Howe

Washington and Lee University,
Lexington, Virginia

QUOTATIONS

CHEMISTRY IN WAR

Two distinguished chemists have recently made pronouncements, identical on the material side, divergent on the moral side, on the use of posion gas in war. It is a question on which civilization will have to come to a decision or to live under lasting and increasing menace. Sir T. Edward Thorpe, in his presidential address to the British Association, at Edinburgh, told his audience that the Germans, between April, 1915, and September, 1918, had used no fewer than eighteen different forms of poison—gases, liquids, and solids—in their military operations. Reprisals became inevitable, and for the greater part of three years the leading nations of the world were flinging the most deadly products at one another that chemical knowledge could suggest and technical skill contrive. Sir William Pope, an equally eminent English chemist, speaking at Montreal a few days before, said that by the Armistice the Allies had sufficient supplies of mustard gas to "have enveloped the Germans knee deep, and had discovered a new vapor against which respirators would be of no avail, so strong that it would stop a man if it were present in the atmosphere in the proportion of one part in five millions." The President of the British Association admitted that warfare had now definitely entered on a new phase. But in passionate words he deplored the prospect on the part of science and of humanity, and hoped that, through the League of Nations or by some other form of international agreement, it might be averted. Sir William Pope, on the other hand, claimed that from the humanitarian point of view gas was more merciful than high explosives, and stated his belief that chemical agencies would be the sole deciding factor in future wars.

Certainly even the eighteen poisons used by the Germans and the counter-efforts actually brought into operation by the Allies were the fumbling of experimental amateurs compared with what might follow a new outbreak of hostilities between great manufacturing and scientific nations. Poison could suddenly extinguish all life over so many square miles of territory, over a walled city, or a navy in its harbor. Science could provide the formula, industrial chemistry the substance, and aeroplanes the means of distribution. Were poison gas a specialized and secluded branch of chemistry there might be some hope that science might refuse to pervert its high mission from the service to the destruction of mankind. But such a possibility does not arise, because the discovery of noxious substances is an inevitable side issue of the pursuit of chemical knowledge. The world must either face and prepare for the future, or it must prohibit chemical warfare by an international agreement supported by effective international sanctions.—The London *Times*.

SCIENTIFIC BOOKS

BIBLIOGRAPHY OF RELATIVITY

THE great interest in any scientific or philosophic discovery generally calls forth semi-scientific and learned discussion, followed by a demand for literature, historical and recent, upon this particular subject.

The literature of the theory of relativity is recent and more or less familiar to the scientist. Before 1905, the year in which Dr. Albert Einstein brought forward his fundamental and special theory, the literature was scattered and bore indirectly upon the theory of relativity as we know it to-day. The literature is quite extensive, however, from 1905 to the time of the British solar eclipse expedition in May, 1919, the results of which placed the theory of relativity in a more or less acceptable light, that is, the mathematical and physical aspects found verification in the astronomical interpretations.

In view of the fact that the subject of relativity will probably have great influence upon future problems in physics and astronomy, due to its mathematical character, and that the history of this development can best be served when the literature is known and organized, a bibliography should prove of great value.

The present note is to call attention to the fact that an extensive and as complete a bibliography as is possible, is in process of being compiled. And thus far the writer has collected approximately one thousand titles of books, pamphlets, articles and notes published in all languages to which it is possible to obtain access. The John Crerar Library seems the most logical place to form this bibliography due to its great collection of scientific literature. The philosophical literature bearing upon this question (relativity) fortunately falls within the scope of the library's collection.

It is hoped that each entry upon the typewritten card will contain, besides the author, title, source, date, also a short abstract, note or review indicating just what the principal idea is that the author has conveyed. A mere author-title list is for current use and answers only half of what a true bibliography ought to be, and therefore is quite unsatisfactory. Over 90 per cent. of the titles represent material in The John Crerar Library, and it is planned to make the collection in the library as complete as possible, bearing upon relativity.

The question of publishing this bibliography is a difficult one, and at present no provision has been made for it.

What form of bibliography will be most valuable for scientific purposes is an open question. There are as many types as there are demands for certain use. An alphabetical author-title list serves one certain demand, and a chronological author-title list serves another. One might be analytical and another synthetical in its aspect. A synthetical bibliography must be selective, critical and constructive [1]; add to this abstract, notes and reviews, and it would be a bibliography worthy of its name.

[1] Dr. George Sarton, *Isis*, III., 159–170, No. 8, Autumn, 1920.