impressed by its many unusual aspects that I felt a brief account of it might be of interest for permanent record. Before I could find opportunity to work up my notes for this purpose, a very fine and detailed description of what was doubtless the same phenomenon was published in SCIENCE by Ernest H. Cherrington, Jr., and my own contribution was allowed to lapse.

The aurora of the night of August 11 of this year, also witnessed by me from this spot, ranked with the foregoing as one of the three most magnificent I have had the good fortune to witness,[1] but in some particulars it was altogether unique. When first observed at about 9:20 P.M. it comprised a single sweeping auroral arch in the northern heavens, but one reared so high that it included almost half the horizon between its termini, while its vertex nearly attained the zenith. At this time it appeared from my window as a simple broad band of strong whitish light, not without a serene majesty of its own. This was little prophetic of the glory to come, yet I roused a friend, Harold M. Hill, who had never witnessed an aurora, and it was consequently our good fortune to be in the open with an unimpeded view of the entire firmament when the climax came.

The first evidence of breaking was a narrow beam or ray which appeared to the northwest just under the span. The arch then rapidly broke up, with strong cloud-like patches of light appearing to east and west, while the portion between evolved into an array of luminous shafts or streamers so grouped as to seem to radiate from a roughly stellate centrum just south of the zenith in the general neighborhood of Vega. The best of the display occurred from about 9:45 to 10:00 o'clock, when the fast-changing beams and rays covered more than half the heavens, and rapidly shifting lesser flickerings were flashing all over and through the whole. At its peak nearly three fourths of the sky was illuminated, although the radiating streamers to the south of the centrum were very short, in contrast to those extending far down the northern sky and the still longer ones to east and west. Also on the south there was more of a tendency for the beams to give way to scattered, irregular spots and clouds of light than in other parts of the heavens. By this time considerable color had developed, mostly reddish, orange and pinkish brown tones which again were much more in evidence to the extreme east and west than elsewhere. After 10:00 o'clock the illumination lost its active motion and most of its color, retreating more and more into the northern sky, where it finally resolved itself into a simple diffused arch of the more usual type. This endured until we retired, and was still in evidence when I arose to look, around 1:00 A.M. and again just before dawn, though meanwhile considerable cloudiness had developed to obscure its details. I was unable to note any recurrence of the more lively pyrotechnics. As long as the first arch persisted, the northern sky remained quite dark under it, but at no time did I observe the intense contrasting *blackness* there which was so conspicuous an accompaniment of the arch of August, 1937.

It occurred to me at the time that the centering of the major display so definitely *south* of the zenith might well entail a visibility in much lower latitudes than is ordinarily the case for such phenomena. This has since received confirmation through newspaper reports, from one of which[2] it transpires that on this night the aurora was seen at least as far south as Summit Lookout in Cajon Pass and Lake Arrowhead in the San Bernardino Mountains of southern California, where some observers are reported to have interpreted it as the glow of a distant forest fire.

S. STILLMAN BERRY

WINNECOOK, MONTANA

[1] For the third of these see SCIENCE, 44: 496, 568, 678, October and November, 1916.

[2] *Redlands* (Calif.) *Daily Facts*, August 12, 1939.

OZONE IN THE '38 HURRICANE

DURING the hurricane on September 21, 1938, the smell of ozone was strong during the latter part of the storm. The peak of the storm was shortly after 6 P.M. (D.S.T.); the lowest barometer 28.41 (corrected) at Amherst, Mass., being at 6:05, and the highest wind velocity, 80 miles, at 6:17. During the heavy rain, about 6 to 6:30, the ozone was strong, and later, when the rain stopped, the ozone was so strong I was uncomfortable. At this time my watch said 7 o'clock. No odor of ozone was noticed in the first part of the storm nor was any noticeable in the house. My colleague in chemistry, in the Massachusetts State College, Dr. Walter S. Ritchie, independently reports similar observations.

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THE INTERNATIONAL UNION OF CHEMISTRY

COMMUNICATIONS have been received from individuals and organizations of many lands requesting advice as to whether or not they should endeavor to continue the work of the Union and its various commissions during the present chaotic condition of the world, or suspend operations until the return of peace and the general resumption of friendly international relations.

The answer to this question in the judgment of the writer should be unequivocally that the work is to go on, if possible still more actively than heretofore, not only in its local national field, but particularly in its international aspects. The Union, as its name signifies,

is an organization of scientists banded together for the good, not of any one country, but of all. Its aims are the welfare and happiness of all mankind, through the advancement of civilization by the triumphs of chemistry. No science offers greater opportunities for service and beneficent achievement. When the Union and its affiliated congress meet, as at Rome last year, where about 3,000 attended, representing some 30 nations, national boundaries and misunderstandings are forgotten, and mutual appreciation, esteem and good fellowship prevail. This spirit of friendship and regard, carried back home by all the delegates, is often like a breath of fresh air in dispersing the fogs of a murky local atmosphere of misapprehension and suspicion. Nor does it cease upon their arrival in the homeland, but in many cases is continued through correspondence. Individually the bonds of friendship so established may seem relatively unimportant, but collectively their Lilliputian character becomes a force not to be ignored.

The usefulness of the International Union of Chemistry and of its various commissions and committees will be determined primarily by the wholeheartedness with which the associated nations cooperate, and the fact that certain nations are now at war is no reason why the other nations concerned should not continue to cooperate and, to the best of their ability, take advantage of those opportunities for important useful service which the International Union offers, so that when the world finally returns to normal we shall be that much further along on the road to our goal. Even in the warring nations, it is to be hoped that they will still "carry on," as conditions permit, for their own ultimate benefit and that of the rest of the world. Their chemical societies are still active. Why should their international chemical problems be either dropped or forgotten?

To suspend activities now might give the impression of a malingering and pessimistic attitude, totally at variance with the inspiring vision and courage of chemists the world over.

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SCIENTIFIC BOOKS

RECENT BOOKS IN GEOLOGY

Geology: Principles and Processes. By W. H. EMMONS, G. H. THIEL, C. R. STAUFFER and I. S. ALLISON. 2nd edition. 451 pp. 468 figs. New York: McGraw-Hill Book Company. 1939. $3.50.

Elements of Geology (with Reference to North America). By WILLIAM J. MILLER, professor of geology, University of California at Los Angeles. 2nd edition. viii + 524 pp. 367 figs. New York: D. Van Nostrand Company. 1939. $3.50.

Textbook of Geology, Part I—Physical Geology. By CHESTER R. LONGWELL, ADOLPH KNOPF and RICHARD F. FLINT. 2nd edition. ix + 543 pp. 340 figs. New York: John Wiley and Sons. 1939. $3.75.

THE second edition of the book by Emmons, Thiel, Stauffer and Allison, members of the department of geology in the University of Minnesota, originally published under the short title "Geology," has been considerably revised and completely reset. It is intended for use in a one-semester introductory course for college students, dealing with the physical phases of the science. The chapter on the atmosphere and the work of the wind has been enlarged and includes a brief consideration of certain meteorological principles as well as the discussion of weathering. The treatment of varved glacial lake sediments and their importance in glacial and post-glacial chronology has been expanded. The chapter on diastrophism has been enlarged to include structure of rocks. A new chapter on sediments and sedimentation has been added. The chapter on earth history is omitted. The volume is well organized, and its subject-matter is presented in an interesting manner. It contains an unusually large number of excellent photographs, sketches and maps. The numerous block diagrams are a valuable feature. The layman as well as the student will benefit from reading it.

First published in 1931, Professor Miller's textbook is one of the few designed to serve a one-semester course in general geology, covering both the physical and historical phases of the science. The principal changes made in this new edition are outlined by the author in his preface. Distinct and important improvements are the enlarged, more attractive format, superior quality paper and especially the greatly improved reproduction of the photographs. More photographs and block diagrams are used, and these have been brought up to date. Several chapters have been rewritten to coincide with modern data and concepts. A unique feature is the discussion of the instability of the earth's crust immediately after the introduction before the materials of the earth are considered. The chapter is understandable even at this early stage in the development of the subject and serves to stimulate interest at the beginning of the course. The text may seem to be rather long for a one-semester course, but this characteristic is shared