

quite unconscious of the fact that the camera was winking at the mountain slope when I thought it was photographing the lake.

In the vertical view features are flattened. This is true for vision and is even more pronouncedly true in photographs. It would be desirable therefore to observe during the earlier and later hours of the day when shadows are strong. The swiftness of flight makes this practicable, since miles become short when expressed in minutes and a distant field of study can be reached quickly. Photography, however, requires the strongest light possible because the exposure must be very brief when the camera is moving a hundred miles an hour, and this requirement limits the available hours to those when shadows are weak or lacking. The effect of this limitation is yet to be worked out, but since rift features are to a great extent relief features, it is of consequence.

So far as the trial flights of June 9 and 11 go they seem to demonstrate that aerial observation of a linear structural feature such as an earthquake rift is practicable. If one end of a rift be known it can be followed by a man skilled in the interpretation of topographic forms. Or if a line of features be detected, it may be so traced as to demonstrate their continuity and to facilitate the closer examination which may be necessary to prove the existence of a fault. I conclude that the airplane can be used to advantage as a means of rapid geologic reconnaissance to map large structural features.

BAILEY WILLIS

SCIENTIFIC EVENTS

INTERNATIONAL EXPLORATION OF THE UPPER AIR¹

INTERNATIONAL exploration of the upper air dates from 1896, when a conference took place at Petrograd. Methods of sounding the atmosphere, even to a height of 23 miles, were devised. By the use of drifting free balloons, and recording instruments carried up by kites and anchored balloons, an unexpected stratification of the atmosphere has been discovered. The temperature falls regularly up to a height averaging six or seven miles from the ground,

¹ From the *London Times*.

lower over the equator, higher near the poles. But the upper air is arranged in vertical columns in which the temperature is constant with height at any particular time and place. Little is known as to the cause of this disposition, and less as to the influence it must have on other factors of wind and weather. Useful knowledge can be gained only from data obtained by the same methods at the same times at the largest possible number of stations. International cooperation is necessary. It was interrupted by the war, although all the combatants made extensive use of the latest meteorological methods for the practical objects of artillery, aviation, poison gas, and sound-ranging. It has now been resumed. The other day we gave an account of the proceedings of the first meeting since the war, held at Bergen, in the last week of July, under the presidency of Professor V. Bjerknes. The name of that distinguished Norwegian meteorologist is associated with a new theory of the weather in temperate latitudes, on which we commented a year ago. The theory briefly is that just as the poles are capped with snow so they are capped by a great mass of cold air. In a wavering line round each temperate zone this polar air meets the warm air from the equator abruptly. Along the front of contact the warm air rises over the cold stream. Cyclones and anticyclones are born of the contest. The professor urges the formation of a closely set chain of observing stations round the globe in the zone of struggle. Other meteorologists are more disposed to assign the causes of our weather to the vaster regions of the upper air. An international meteorological committee, to meet in London in September, has been appointed by the Commission, and is to give special attention to the polar theory. The progress of its labors will be followed with deep interest. There are few human activities which would not gain by the advance of meteorological science, and the future of aviation will be largely determined by it.

THE WORLD'S SUPPLY OF WHEAT

ACCORDING to a report issued to the Department of Agriculture prospects for the world's