

two equal portions, in one of which the lead is precipitated as chromate and in the other copper is determined by titration with potassium cyanid. The filtrate from the fused sulfids is acidified with acetic acid, filtered and the precipitate thoroughly washed and transferred together with the filter paper to a solution of ferric chlorid, which is heated to the boiling point and titrated with potassium bichromate. Zinc is precipitated as sulfid in the filtrate from the original sulfid precipitate, after adding acetic acid and neutralizing the mineral acid with sodium hydroxid.

The second paper of the evening was read by Dr. Fireman and was entitled: 'The Action of Ammonium Chlorid upon Tetra- and Penta-Chlorides, Preliminary Communication,' by P. Fireman and E. G. Portner.

The last paper of the evening was read by Mr. J. D. Tinsley and was entitled, 'On the Estimation of the Water Soluble Constituents of Soils,' by J. D. Tinsley and F. K. Cameron.

Dr. Seaman spoke on the size of medicine droppers found in the market. He had found them variable, giving drops of different sizes. He showed that the size of the drop depends on the external diameter of the orifice and not on the thickness of the walls.

WM. H. KRUG,  
Secretary.

#### DISCUSSION AND CORRESPONDENCE.

##### PREVENTION OF HAIL.

BUT little notice has been taken in the United States of the remarkable progress made in northern Italy in the establishment of stations for the protection against injury from hailstorms, by means of the *Wetterschiessen*—one of the old 'superstitions' which has come to honor again in our enlightened age. Shooting and ringing of church bells has for ages been popularly supposed to be efficacious against the effects of thunder-storms, especially of lightning. But the belief found no scientific support, and statistics seemed to prove that the rains supposed to follow the heavy cannonading of great battles are, like the weather changes following those of the moon, quite as much the exception as the rule. Now, however, the matter has taken the

practical shape, in the form of stations located at intervals of not more than a kilometer apart in regions subject to hailstorms, and provided with a small cannon placed vertically and surmounted by a six-foot, narrow-conical trumpet, which transmits the vortex and concussion of a 2-3 ounce charge of black powder to the threatening cloud, preventing the formation of hail, and apparently also diminishing the electrical discharges. The idea originated with Burgomeister Moritz Stigel, of Styria, where after three years' experience complete exemption from hail-injury seems to have been secured, so that the inhabitants have abandoned hail insurance, finding the new method cheaper.

In the last semi-annual volume of Proceedings of the Academy of Georgifili, Florence, the subject is once more extensively discussed. A new style of breech-loading rapid-fire gun has been substituted for the original Stigel pattern, and 800 of these anti-hail stations have been and are being established in the region of Brescia, for the protection of vineyards. Small bombs with time fuses have been added to the equipment, and it is stated that the vortex, outlined by means of the dust, reaches the height of two kilometers, and that its low, whistling noise is heard from fourteen to seventeen seconds after the discharge.

E. W. HILGARD.

##### ELECTRICAL ANÆSTHESIA.

EDITOR OF SCIENCE: My attention has been called to an account in a New York paper of the method of producing anæsthesia by electricity, now being tried experimentally in the Yale Psychological Laboratory. Permit me to say that this account was entirely unauthorized. The demonstration of what had been accomplished was made informally at the recent meeting in New Haven of Section H of the American Association for the Advancement of Science, and no permission was given for any publication of the results. The last authorized statement in regard to the matter appeared in SCIENCE for March 10, 1899; unless there is some reason for the contrary, all future statements will appear first in the columns of SCIENCE.

E. W. SCRIPTURE.