

our soil, while a good rotation properly handled, with thorough cultivation of ject is to give principles and not the how of their application, which will vary with different conditions and in different places.

One thought, however, calls for further notice. With an increase in the number and variety of crops some might question where could they be marketed? The question should be easily answered. With the market we have for all kinds of dairy products, for poultry and for eggs, and with the demand for beefing cattle which now exists, it seems to me that in our own barn yards is the best market for our farm crops. I believe that with improved methods of crop management and rotation, and improved methods of cultivation, that the increasing demand of our own markets for agricultural products may be supplied, as well as those from our neighbors surrounding us. Yes, and I believe this may be done without decreasing by one bushel the amount of wheat produced and exported, or increasing by one acre the land cultivated.

#### SCIENTIFIC MISCELLANY.

The latest apparatus for telegraphing images to a distance is the idea of M. Dussand, the inventor of the micro-phonograph. The image is received in a camera, passed through a rotating shutter pierced with small openings arranged in a spiral, and falls upon a selenium plate through which is passed an electric current traversing the primary circuit of an induction coil. The apertures of the shutter bring the light of successive parts of the image to the selenium, setting up currents in the secondary circuit of the coil that vary in strength with the intensity of light, according to a well known law. The varying currents pass to the receiving instrument, where a very sensitive telephone diaphragm is displaced more or less in front of a fixed plate, more or less weakening a beam of light that passes a shutter exactly like that of the transmitter and moved in unison with it, and is thrown upon a screen by a system of lenses. The light reaching the screen has the same intensity as the corresponding part of the image. The result is, theoretically at least, that when both shutters are rotated over the entire image in a tenth of a second, the time visual impressions persist, the entire image is seen on the screen.

A rainfall of 31.76 inches in 24 hours is reported to have occurred last December at Nedunkeni, in the northern province of Ceylon, where the total fall for 1897 was 121.85 inches, although the average yearly rain is but 64.70. Other great rainfalls on record are 31.17 inches in 22 hours at Joyense, France; 30 inches in 26 hours at Genoa; 33 inches in 26 hours at Gibraltar; 24 inches in one night near Bombay; and 30 inches on each of five successive days on the Khasia Hills, India. The greatest annual fall is 600 inches, the record of the Khasia Hills.

The number of known asteroids is now 434, of which 158 have been discovered by Frenchmen, 70 by Americans, and 64 by Germans. Charlois claims the last two.

The smoking of tea cigarettes is pronounced one of the most harmful dangerous of our end-of-the-century fads. The cigarettes are made from green tea of unbroken leaf and little dust, this being made pliable by moistening before being stuffed into the paper cylinders, and the finished cigarettes being laid away for a few days before use. The wise beginner who uses only one cigarette on his first trial will never re-

peat the experiment. He experiences a thickening of the head and a desire to sit down, but if the smoke is continued, a feeling of intense exhilaration follows the first effects and lasts until the last cigarette is finished. An observer of this habit declares that the agony of the opium fiend is a shadow to that of the nauseated victim of the tea cigarette. Food cannot be looked at for hours, yet a cup of tea is the first step toward relief, and is followed within an hour by craving for a cigarette.

The surgeon-general of India has made a favorable report upon Dr. Haffkine's method of preventing bubonic plague by inoculations with weakened virus. It is proved that the inoculations prevent from 80 to 90 per cent of deaths, and reduce the plague from an epidemic form to the position of a sporadic disease. The Bengal government has decided to encourage this system of prevention. It is not made compulsory, but completely inoculated families are made exempt from liability to removal to a plague camp, if any member is attacked by the disease.

So-called wireless telegraphy, it is pointed out, cannot become practicable for long distances until the energy, now scattered profusely in all directions, can be concentrated in one narrow path. Eventually, though probably not at once, it may become possible to focus the electromagnetic waves, like the rays of a search-light, upon a point at a great distance away. Under present conditions, it is calculated that at a distance of one mile the fraction of the total energy received on one square foot is less than one-three hundred and fifty millionth of the total energy radiated.

A photograph of a landscape by the light of the aurora borealis, with an exposure of only two minutes, is a unique achievement from Scotland.

Cast-iron pipes are given extra strength by winding with wire, and the wire-wound pipes can be made of unusual lightness. This is the idea of a French iron master, M. Jacquemart, who makes the castings with projecting rings or bands to hold the wire in place. Annealed steel wire is used, and this is wound the pipe in a lathe, the whole being then painted or dipped in asphaltum. A pipe 6½ feet in diameter, cast in lengths of 13 feet, has been satisfactorily tested, the result showing the wired pipe to be capable of withstanding pressures much beyond those for which the unstrengthened cast-iron is safe.

French soldiers have been found by M. Vincent to be on the average a hundred times more subject to typhoid fever than native Algerian soldiers. This discovery becomes more surprising when it is considered that the disease is usually serious when it attacks the Arabs. It is thought that the comparative exemption of the Arab does not depend on a previous attack or on a slow acclimatization consequent on residence in towns, but on a natural immunity comparable to the immunity of negroes against yellow fever, or of Algerian sheep against anthrax.

A local magnetic pole—a point where a dipping needle stands vertical—is reported by Prof. Leist to exist at Kotchotovka, in the Russian province of Kursk. It is necessary to move 20 yards from this spot to change the direction of the needle 1 deg. At the point of this interesting anomaly, the ordinary compass-needle swings freely, stopping indifferently in any direction.

The spring of carbonic acid in Sondera, supposed to be a result of ancient volcanic action in the region of the Thuringian Forest, seems to be inex-

haustible, a pressure of 17 atmospheres at the mouth having continued without diminution. The yield is about 1,000 cubic yards of gas per hour. Over ten tons of liquefied carbonic acid per day is produced from this supply, the gas being kept confined as it issues from the earth, and used under pressure for power for the liquefying machinery and for a lighting plant.

#### WEEKLY CROP BULLETIN.

Salt Lake City, Utah,  
June 28, 1898.

A good rain occurred on the 22nd, and ended on the afternoon of the 23rd, which, coming after a week of decidedly warm weather, was most opportune and the most important feature of the weather of the past week. In nearly every section of the State the precipitation was sufficiently heavy to be of material benefit to growing crops. The storm was unattended by hail. Nearly normal temperature conditions prevailed throughout the week.

Many complaints have been received concerning the damage to the lucern crop, much lucern having been cut and lying in the field, bleached in consequence of the rain. However, a large portion of the crop has been secured in good condition and another portion was standing. The extent of damage has not been determined.

Fall and spring sown grain has improved since the rain. Grain on dry land was suffering for water and farmers were irrigating. Fall grain that was making too much straw will now mature the head. Spring grain will mature in many sections without irrigation. There is plenty of water for irrigation purposes, much of which having been stored from the copious rains during the month of May.

Vegetation is making rapid growth. Corn and potatoes, also garden truck, are now progressing satisfactorily. Those crops which required replanting owing to early spring frosts and unfavorable soil conditions, are advancing rapidly enough to insure a crop in good season.

Sugar beets are making an excellent growth and are showing the beneficial result of the recent rain.

Strawberries are growing scarce. Cherries and other small fruits are abundant in the markets. Conditions have been favorable for the growth of large fruits, though a scarcity of peaches and apricots may be expected. The weather continues seasonable and all crops give promise of satisfactory yields.

Greenville—A fine rain occurred on the 22nd which was beneficial to all crops. A shower also occurred on the 23rd.

Minersville—Farmers are busy taking care of the lucern crop, a small portion of which was damaged by the rain.

Deweyville—Warm rains occurred on the 22nd and 23rd which were badly needed. Dry land grain will fill well and the crop will be the heaviest that has ever been raised in this vicinity. Lucern that had been cut and lying in the fields was slightly damaged.

Garland—A good rain occurred last week. Everything is growing rapidly. Winter wheat has commenced turning. Lucern is being harvested as rapidly as possible; the crop is very heavy.

Brigham City—A good rain occurred on the 22nd and 23rd, accompanied by thunder and lightning.

Hyde Park—For the growth of crops the weather has been as good as could be desired. Some hay was damaged by the rain on the 22nd and 23rd.

Paradise—The weather was very warm until Wednesday night when it rained all night and Thursday morning. It has been excellent for the crops. Some lucern hay was damaged.