

The Future of Texas.

A recent traveler in Texas, after visiting every section of the State reached by railroads, comes to the conclusion that the possibilities of the State have been vastly overrated. Toward the end of a very intelligent series of letters to the *Tribune* he says:

Texas contains 274,356 square miles. It would make five States as large as Illinois, but no just inference can be drawn from its size alone as to its capacity for sustaining population. Illinois contains fully as much first-rate agricultural land as Texas. The whole of Eastern Texas, embracing a territory larger than Ohio, consists of pine barrens, with a little arable land along the valleys of the streams. Out of the valleys the soil is sandy, and would not pay to clear and cultivate. This region will never be thickly settled. It now supports a scanty population of lumbermen and very poor farmers, who cultivate little patches along the creek bottoms. The larger streams are bordered by narrow tracts of good soil where there are some large cotton plantations. This part of the State is not a new country, and except on the opening of the lumber industry by the building of railroads, it has had no growth in recent years. Something might be done with fruit culture—a few peach orchards at Palestine have proved remarkably profitable, their product bringing high prices in the St. Louis market; but the population lacks enterprise to develop any new branch of industry.

West of the pine barrens is a broad belt of rich, black, rolling prairie country, stretching from the Red River southward almost to the Gulf, and having an average width of about 200 miles. This region may be roughly compared in area to the State of Illinois. It contains some scrub-oak forests, where the soil is poor, but fully nine-tenths of the surface is first-rate land, as good as the best prairie land in the Northwest. Rich and inexhaustible as is the soil, however, this section shows little tendency toward dense settlement. The northern portion is being subdivided into small farms, and is filling up with a good, industrious white population, but the central and southern portions naturally run to large cotton plantations. Cotton is the best crop in this whole region. Central Texas is the best cotton country in the south, and is now producing one-sixth of the whole cotton crop of the United States. It is not nearly as good a corn country as Illinois and Kentucky; and for the production of wheat, no part of it can compare with Minnesota, Iowa, and Kansas. Root crops do not succeed, the tubers being large, coarse, and watery. Some fruits do tolerably well, particularly peaches and pears, but little attention is given to raising them. Apples are brought from the north.

Further west is a broad belt of hilly or rolling country, consisting of prairies and post-oak or black-jack openings, that is too dry for agriculture, but is well adapted for grazing. This is the great cattle region. It stretches from the Red River to the Rio Grande and the Gulf. Some portions of it may eventually be cultivated, if the rain-fall should increase by climatic changes which are said to be going on along the eastern border of the whole arid region from Montana down to Mexico, but nine-tenths of its surface will always be devoted to pasturage, and will consequently support only a scanty population of herdsmen. Still further west is an immense arid region, comprising about three-fifths of the whole surface of the State. Some of it is valuable for grazing; a little, lying close to streams, can be cultivated by irrigation. A great deal is absolute desert, growing nothing but cactus and chaparral. Veins of copper and iron have been discovered in the mountainous districts, and when they are opened, as they will be when the Texas Pacific Railroad is completed to the Rio Grande, considerable population will be brought in. With all the resources of mining, agriculture by irrigation, and grazing possessed by this immense region, its population will, however, always be inconsiderable.

As a whole the State is regarded as unlikely ever to have a population greater than Ohio. A moderately dense farming population in the center, flanked by a sparse population in the east and a still sparser one in the west, grading off to a region with no inhabitants worth mentioning, is all Texas can look forward to.

Bank of England Notes.

The financial editor of the *Philadelphia Ledger* states, on the authority of official report, that the notes of the Bank of England are made from pure white linen cuttings, never from rags that have been worn. They have been manufactured for nearly two hundred years by the same family, the Portals, Protestant refugees. So carefully is the paper prepared that even the number of dips into the pulp made by each workman is registered on a dial by machinery, and the sheets are carefully counted and booked to each person through whose hands they pass. The printing is done by a most curious process in Mr. Coe's department within the bank building. There is an elaborate arrangement for securing that no note shall be exactly like any other in existence. Consequently there never was a duplicate of a Bank of England note except by forgery. According to the *City Press* the stock of paid notes of seven years is about 94,000,000 in number and they fill 18,000 boxes, which, if placed side by side, would reach three miles. The notes placed in a pile would be eight miles high; or if joined end to end would form a ribbon 15,000 miles long; their superficial extent is more than that of Hyde Park; their original value was over \$15,000,000,000, and their weight over one hundred and twelve tons.

A NEW OPTICAL DELUSION.

Mr. Sylvanus P. Thompson, Professor of Physics at University College, Bristol, England, presented a very peculiar optical delusion at the last meeting of the Société Française. Upon examining the discovery of Mr. Thompson it will be seen that it consists of two distinct phenomena, verified by the annexed engravings.

The first stroboscopic circle consists of a series of concentric rings about one twentieth of an inch in width and about the same distance apart (Fig. 1). It is not positively necessary to adhere to these dimensions, for the same can be varied in size in proportion to the audience that is to view the experiments. If the illustration is moved by the hand in a small circle without rotating it, or if it is given the

FIG. 1.



same motion that is required to rinse out a pail, the circle will revolve around its center in the same direction that the drawing moves, and will complete a revolution as the drawing completes its circular motion.

For the second experiment a black circle is drawn, the interior of which is provided with a certain number of equidistant teeth (Fig. 2). The drawing being moved in the same manner as above described, the toothed circle will also revolve, but in the contrary direction.

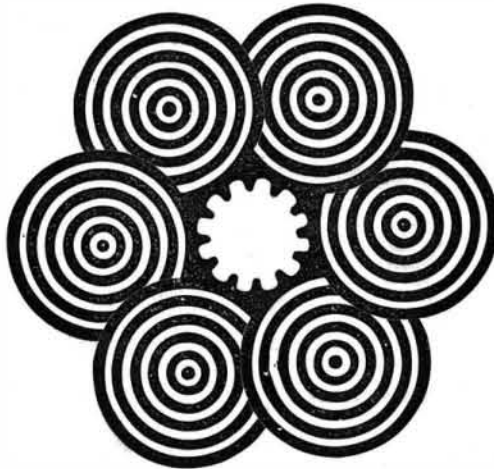
FIG. 2.



The movements are especially interesting and entertaining when the figures are combined as shown in Fig. 3.

The same result is obtained with other concentric curves as well as with circles. By means of a photographic transparency Mr. Thompson was enabled to throw the figure on a screen on a very large scale. The glass plate being moved as before described, caused the figures on the screen to rotate. In this case, also, each circle appeared to rotate around its own center.

FIG. 3.



No explanation can as yet be given for these curious and interesting facts. Mr. Thompson does not believe the property of the retina to retain images for a certain time can account for this, and we are of the same opinion. Without intending to produce a new theory, Mr. Thompson thinks it best to compare this with some other well known phenomena, from which a new property may be attributed to the eye.

Brewster and Adams have described phenomena which are equally curious and are analogous to those of Mr. Thompson. They say the eye has the property of "compensation;" that is, if an object or a movement acts upon the eye for a certain time, a sensation complementary to the real action is produced. For instance, if we gaze at the rocks in a cascade and then at the cascade alternately, for a short time, the rocks will appear to move upward; or if we examine a stream below a cascade or waterfall, we will notice that the water flows much faster in the middle than at the sides of the

stream. If we look at the middle and sides alternately the water will seem to flow backward.

These are a few of the phenomena that might be compared with those of Mr. Thompson, and which may arise from a common cause.—*La Nature*.

New Curiosities at the Smithsonian Institution.

A number of interesting specimens have, according to the *Washington Republican*, been recently added to the ethnological division of the Smithsonian Institution, among the most important of which are the following: A carved figure of a man's head, made from iron pyrites. It was found in Southwestern Mexico, and is supposed to have been an amulet, belonging to a great cazique, during the reign of the Aztecs. The work is highly polished, and presents a beautiful green and gold appearance. The eyes, nose, and teeth are brought out in bold relief, the former being composed of opals, which gleam like sparks of fire. The features are of the most pronounced Aztec type. In a large cave, about two miles from Silver City, Col., there were found some specimens of ancient remains, which are supposed to have been made by the Pueblo people. They consist of arrows, which still have remnants of their sinew shaftings, rain gods, and fetiches in carved and painted wood, tribal totems, and bundles of straw bows and arrows. All these articles are in a remarkable state of preservation, and it is thought that the cave in which they were found was formerly used as a burial place. The entire collection was presented to the Smithsonian, and will be placed on exhibition in a few days. Probably the most important relic that has been added to the museum in a long time is an obsidian vase, made from itztle, or volcanic glass. The workmanship on this vase is perfect, not a flaw having been discovered in the work. It represents a monkey in a sitting posture, with his head bent slightly forward. In the back and shoulders are apertures in which articles for ornament were placed. The carving is exquisite, and shows what perfect lapidaries the semi-civilized people who made it were, as the material of which it is composed is considered the hardest to work in, owing to its brittleness. This relic was also found in the Aztec country of Southwestern Mexico.

On the first floor, in the main hall, stands another curiosity which deserves particular attention. It is a large case, 9 feet by 4½ wide, containing numerous species of snakes, all of which are alive. Through the top, which is covered with glass, the movements of the reptiles can be plainly seen. The cage is filled with stumps of trees, grasses, ferns, and sand, and an artificial lake keeps the ground continually moist. There the reptiles have full sway, and, although somewhat repulsive, their cage is always surrounded with curiosity lovers. Some of the varieties are: coachwhips, indigo or gophers, chicken, black and garter snakes. A king snake is also among the collection, and has to be carefully watched, as he is fond of hugging his companions, and very frequently kills them, after which they make a meal for his highness. This snake is the mortal foe of the rattlesnake, who always comes out second best in their fights.

The work on the annex to the Smithsonian, in which are to be stored the Centennial exhibits and contributions from foreign governments to the United States, progresses rapidly, a large force of workmen being employed. The brick work on the lower story is nearly completed, and the beams for the floors will be placed in position during this week. Nearly two and a quarter acres will be covered by the new building, and when completed it will be a great ornament. A visit to the Smithsonian will well repay all lovers of interesting and curious relics.

Hygienic Effects of Sea and Mountain Air.

This is the time of year when many families leave their homes in the city, for the more invigorating mountain or seashore air, anxious to go where they may derive the most health giving benefit, and still are undecided which way they will go, to the mountains or seaside. To such persons the following extract from a recent work by Dr. C. Alberto, a celebrated Italian physician, may be an aid in helping them to decide:

"The marine air," says the learned doctor, "produces the same benefit as that of the mountain, but each has a different *modus efficiendi*; the former acts more forcibly and energetically on the constitution which retains some robustness and internal resources to profit by it, while the second acts more gently, with slower efficacy, being thereby more suitable to the weaker and less excitable organizations. From this important distinction, the conscientious physician, who takes the safety of his patient much to heart, ought to be able to discriminate whether the alpine or the marine atmosphere is the better suited to the case he has before him."

MM. BANCEL and HUSSON have communicated to the Academy of Sciences observations on the phosphorescence of the flesh of the lobster. They consider it due to a fermentation in which carbo- and phospho-hydrogens are liberated, and which is destroyed by putrefaction, just as the bacteria of carbuncle are destroyed by the vibriones of putrefaction.

NOVEL USE OF ETHER.—A prisoner, named Uhlmann, recently barricaded himself in his cell at Vevey, Switzerland, and defied the gendarmes to take him before the judges. It was not thought advisable to shoot him, and the court would not wait till he was starved into surrender, so ether was thrown into the cell until he became sufficiently stupefied to be harmless.