which was not widely known, as I found out later in Washington.

My first visit was to the placers a few miles from Nome, operated by one of the most important companies, the exact name of which has slipped my memory. The work was carried on on a rather small scale, and in a few hours the manager of the company had shown me everything that was worth seeing. When we returned to his office, suddenly and to my great surprise and even embarrassment, he said: "Geology and geologists are all right, and they do their best, but in my hunt for gold pockets I have been chiefly dependent on this small instrument." Speaking so, he pulled out from the shelf in the corner of the room a fork-shaped branch of a tree in which I immediately recognized the divining rod of the simplest and most traditional form. Remembering our previous talk with this gentleman, the great respect which he had shown to Dr. Brooks and his collaborators and their geological work, I thought, at first, quite unwillingly, that the manager was trying to have some fun with the foreign geologist. However, I soon realized that he was quite serious. He told me about some tests made with his rod by unbelievers. They had placed a gold coin under the carpet, or pretended that they had, and invited him to locate this coin by means of his rod. If the coin really was under the carpet, the rod would immediately dive, thus showing the position of the coin more or less exactly. The manager was rather modest in his pretensions to find the exact point, but was quite positive that he could locate the coin within a circle of about five feet in diameter. During our talk he held the rod in the traditional way, and suddenly it dived. "I am quite sure," he said, "there is a gold vein under this house, but the trouble is that while by means of this instrument I can discover gold, I am unable to find out how rich the vein would be." Probably this consideration prevented him from tearing down the house to start mining at this particular point. As follows from Dr. Browne's article European operators would be, probably, more successful in this case.

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A BANKED RACE-TRACK ILLUSION

WITH the consent of the writer I venture to send the following account of an old experience which I have recently extracted from my friend Mr. Gordon Pennington, a Cleveland engineer.

To keep my promise made this morning, I am going to give you a brief account of my experience on the Luna Park track.

This track, you may recall, was circular, a quarter mile in length, and banked sixty degrees, the banked portion curving gradually to horizontal at the inner edge of the track.

The motorcycles used were light and direct geared and could not be run under thirty-five or forty miles an hour.

When I went out to the track to become a motorcycle racer I had never been on a motorcycle before. On my first experience I rode around the inner edge of the track for several turns at the minimum speed the motorcycle could be held down to. As soon as I became used to this I opened up the throttle, increased my speed and, of course, had to climb up on the sixty degree portion of the track. As I climbed from the more horizontal to the steep portion of the track I was very conscious of the decreasing inclination of my body to the horizontal until, when I had reached the sixty degree section, I had the sensation that my body was almost horizontal (probably was inclined twenty degrees to the horizontal). I was very conscious that I was on my side. I was where I knew I ought to be. My perception was guided by my intellect, not by my internal sensations.

A few seconds after I had reached full speed I experienced the novel sensation I spoke to you about. Suddenly I and my motorcycle seemed to regain the vertical position and, of course, simultaneously the entire track and the field in the center of it, filled with people and automobiles, tilted up at a steep angle. I then found myself racing on a horizontal track (that is, laterally) and at the bottom of a tread mill which seemed to turn under me at just the right speed to keep me always at the bottom.

After my first experience this sensation of being vertical and the rest of the world inclined continued on all subsequent runs, and increased my sense of security on the track. In that first experience, however, when my point of view changed, I was for a few moments completely bewildered, and let my motorcycle travel clear up to the retaining board on the upper edge of the track and very nearly crashed. I suspect that a good proportion of the accidents which have occurred to beginners on these circular tracks have been the result of this moment of bewilderment which I assume that others have experienced in the same way that I did.

When I read this letter to a colleague in the laboratory, one of us said "Gestalt," and spoke of a period of physiological adaptation. The other said "Relativity or Frames of Space" and maintained that the adaptation was purely mental: "It is not like a case of the retina getting modified to function in a different light, or the skin at a different temperature. The otoliths press on the bottom of the rider's labyrinth, his head on his neck, his seat on the saddle, and the wheel itself on the track precisely as they would if the speed of the machine or the curvature of the track were reduced and he were riding practically upright along a flat path."

Both agreed with Mr. Pennington that the "illusion," once accepted, was useful. The one vital problem was to maintain his balance and hold the track, and the more simply and familiarly he could interpret his bodily feelings the easier that was, however topsy-turvy it might seem to make the world beyond. All of which may leave one wondering: When is an illusion not an illusion?

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SOCIETIES AND ACADEMIES

NOTES ON THE REPORT FOR ASTRONOMY AT THE CLEVELAND MEETING

IN the reports of the fourth Cleveland meeting of the American Association (SCIENCE for February 6, 1931) the paragraph devoted to Section D (Astronomy) on page 152, for which the present general secretary of the association was responsible, is regrettably inadequate in a number of ways. That paragraph was based on an excellent report received from the section secretary, which was itself too long to be included in the special issue of SCIENCE that carried the story of the meeting. The amount of space actually allotted to any section or society in such an issue can not be ascertained definitely until all manuscripts for that issue have been assembled, after which much deletion is generally necessary. In this instance notes on some important papers were finally omitted and some inaccuracies were introduced. The secretary of Section D has very kindly prepared the following amendations to the report on the Cleveland sessions of that section.

B. E. L.

In the note on the paper by Seares, Sitterly and Joyner, the kernel was omitted with the deletion of mention of "Eros." The investigation was on the magnitudes and color indices of the comparison stars for Eros, and it was in these that they found discrepancies among various observers.

There was but one paper on the Leonids, and that by Morgan and Calvert, who on the morning of the 17th of November, 1930, observed many meteors from the Leonid radiant, at the maximum 187 per hour. The statement of 20,000 meteorites which reach the earth's surface annually was a general estimate by C. C. Wylie and in no way concerned the Leonids.

In the field of spectroscopy, Miss Cecilia Payne presented a study of the Scorpio-Centaurus cluster, in which she emphasized the need of interpretation of the discordances in the character of lines of the spectra, which occur even in stars of the same type. Pressure and stellar rotation were discussed as causes. The important paper by Struve and Elvey on stellar rotation came as an apt sequel to that of Miss Payne. From the contour of the lines they deduce stellar rotation periods and find that equatorial velocities of 250 km/sec are not exceptional. The method was checked by observing the eclipsing variable Algol by the method first used by Schlesinger. Results were in substantial agreement.

Miss Losh finds that the velocity of the center of mass of Zeta Tauri is variable with a period of 24.6 years and a range of 43 km. The possibility of detecting such long-period variations increases as series of observation are extended.

An interesting variation of usual practice in the computation of spectroscopic orbits of eclipsing binaries was suggested by Carpenter, who proposes the introduction of the time of minimum as determined by photometric observation into the computation. A test case of u Herculis yielded gratifying results.

Bobrovnikoff identifies certain nuclear bands in the spectra of comets with the Raffety bands of the presumably CH molecule. The agreement is not complete. Frequency formulae gave fairly good representation for the remainder of the bands with the CN molecule suggested as the carrier. Berman's studies on the nebular lines at wavelengths 3869 and 3967 indicate their intensity ratio approximately constant in various planetary nebulae. Certain considerations lead to the rejection of C++ as the source, and the author inquires if P++ or Si++ are possibly available.

The remaining papers were brief. Alter presented a study by the method of correlation periodograms of the planetary tidal hypothesis and variation of sun-spot activity. Extension into the future will test the validity of the conclusions, which seem decidedly interesting. Joseph Johnson gave a preliminary report on the solar eclipse of 21 October 1930 as observed at Niuafou. His attention was especially directed to determination of the intensity of various parts of the corona. MacMillan showed some ingenious stereoscopic pictures of star clusters. Mees discussed the characteristics of some new high-speed panchromatic plates developed by Eastman Kodak Company, adaptable to visual refractors. Mehlin gave the result of the test of the objective of the Drake Municipal Observatory, and Dustheimer reviewed the astronomical radio program of WTAM. This station has broadcast 62 astronomical talks in the last six years.

It is expected that the paper on the "Life of Sir Isaac Newton, a Character Sketch," by Louis T.