seen floating about half way between the seer and the orchestra. While the explanation of these peculiar associations is as yet very defective, the possibility of their anticipating the sounds and their comparatively recent growth, are interesting features of his case, from which a possible explanation might proceed.

Physical and Mental Powers.

A number of physical measurements have been made upon 2,134 Cambridge students within the past few years, and Dr. Venn has tabulated these for the purpose of comparing mental with physical faculty. The measurements taken were the distance at which "diamond" type could be read; the maximum pull exerted, as in the act of stretching a bow; the maximum squeeze of each hand; the head volume, which is the product of the extreme length, by the extreme breadth, by the height above a given plane; the lung capacity; and the height and weight. The men were further classified according to scholarship in three grades, *A*, *B*, and *C*, and the averages of all the measurements were separately tabulated for the three grades. As comparatively large and homogeneous groups are dealt with, any correlation of superior physical with superior mental capacity should be evident. The tables, however, show that there is no practical difference in any of the physical averages between the three grades, except in one respect, the strength of pull. Here the lowest grade has the largest average, while the highest grade has the lowest. Dr. Venn interprets this to mean that each grade of students has about the same general physical development, but that strength of pull is something that results from special devotion to athletic sports, and that it is the men who do not devote themselves so assiduously to scholarship who have most time and inclination to develop this side of their physical culture. One other distinction is also noteworthy: it is that the head volume of the first grade in scholarship is greater than in the lowest grade. The difference amounts to about one seventh of the size of the head. How important this fact may be must be determined by future statistics. When tabulated according to age (nine-tenths of the men are between nineteen and twenty-four years of age), it seems clear that the heads of university students keep on growing at least until the age of twenty-four, while in the population generally the growth stops at nineteen years. The height of the physical powers seems to be attained at the twenty-second or the twenty-third year. While these results are in agreement with the modern theory of the relation of mind and body, they show the necessity of distinctive measurements and careful interpretation, if sure results are to be obtained.

HEALTH MATTERS.

Nose-Bleed.

OBSTINATE nose-bleeding is frequently one of the most difficult things to check. Several aggravated cases have lately occurred at the Hospital of the University of Pennsylvania. As a last resort, Dr. D. Hayes Agnew tried ham-fat with great success. Two large cylinders of bacon were forced well into the nostrils, and the hemorrhage ceased at once. This is a very simple remedy, and one which should be remembered for cases of emergency in the country.

Ground-Water and Typhus.

It is well known that a connection has been observed (in Munich and other towns) between ground-water and typhus; the disease gaining force as the water goes down, and declining as the water rises. It is thought that certain decompositions are favored by air taking the place of water in the ground. While in former years Hamburg has exemplified this effect, says *Nature*, the last typhus epidemic there, according to Professor Brückner, was quite in discordance with the variations of ground-water. From 1838, it is stated, the typhus mortality in Hamburg steadily fell from 19 to 2 or 3 per 1000; but from 1885 it rose again to 9; and whereas before 1885 the epidemic was a summer one, with its maximum in August, it now became a winter one, with maximum in December. The curve of ground-water continued to have the same course as before. Professor Brückner points out that this epidemic of 1884–87 corresponded in time with certain harbor works being carried out at Hamburg; and he attributes it to the upturning of enormous masses of earth, the abode of numberless bacteria, whose diffusion among the inhabitants was thus facilitated.

The Physiology of Taste.

The localization of the different forms of taste sensations is a subject which is usually cursorily passed over in text-books, with the statements that the posterior third, the tip, and sides of the tongue only are sensitive; that sweet substances are best perceived by the tip, bitter ones at the back; and so on. In a German medical journal is an abstract of interesting observations by Oehrwall, who, by the aid of a lens, stimulated the individual papillæ by means of a fine brush dipped in solutions of sugar, quinine. acetic acid, and salt. He found that, as had before been observed, the circumvallate papillæ were particularly sensitive, but that on the sides and tip the fungiform papillæ only were sensitive. He estimated that in the whole tongue there were 350 to 400 of these papillæ, of which he found 125 only to respond to stimuli. Many of them appeared to be excited by all four of the substances employed, but in other cases papillæ were found to respond to one form of stimulus but not to another. Thus nineteen per cent responded to acetic acid, but not to sugar; twenty-four per cent which were sensitive to acid were unaffected by quinine; while fifteen per cent which recognized sugar did not respond at all to the application of quinine. All of the papillæ were sensitive to touch, pain, heat, and cold. When stimulated by a mild faradic current, an acid taste only was excited. He confirmed the observations of older authors, that most of the anterior two-thirds of the dorsum of the tongue was devoid of gustatory papillæ.

The Pre-Frontal Region of the Brain.

Modern physiologists, says a Berlin correspondent of the *Lancet*, regard the pre-frontal part of the brain as the seat of character and intellect. After the removal of this part in dogs and monkeys, no paralysis of any muscles or loss of sensibility occurs, but singular changes in the behavior, emotions, and character of the animals have been observed. They become livelier, restless, impatient, irritable, quarrelsome, and violent. Their movements seem purposeless, and their attention to what is going on around them, and their intelligence, are diminished. These observations have been confirmed by similar phenomena in the case of human beings. The well-known "Crowbar case," described by the American physician Dr. Harlow, is one in point. A young man was busy tamping a bursting-charge into a rock with a pointed iron rod, when the charge suddenly exploded and the rod entered his head under the angle of the lower jaw, came out in the frontal region, and was found some distance off, covered with blood and brain-substance. He became childish, wilful, fickle, and restless, and suffered loss of intellectual power. Gradually, however, these symptoms disappeared: he recovered, and lived for thirteen years. His skull is preserved in Harvard University.

Gastric Juice and Pathogenic Germs.

Drs. Kurlow and Wagner, in a paper on "The Influence of Gastric Juice on Pathogenic Germs," which they publish in the *Vrach*, describe some interesting experiments which they have made on this subject, from which they are led to the conclusion that constant or specific microbes do not exist in the stomach; and those which enter it, together with sputum, food, or other ingesta, are only accidental and temporary residents, and cannot live in the normally acid contents of the stomach. Gastric juice is, according to the authors' experiments, an exceedingly strong germicidal agent, and when living bacilli get into the intestinal canal it is due to various conditions entirely independent of the gastric juice. When the latter is normal and in full activity, only the most prolific microbes, such as tubercle bacilli, the bacilli of anthrax, and perhaps the staphylococci, escape its destructive action; all others are destroyed in less than half an hour. Similar influences exist in the intestines, as proved by inoculations with the cholera bacilli. On the latter subject the authors intend making further experiments.

Caisson or Tunnel Disease.

As one of the New York members of the board of consultants of St. Francis Hospital, Jersey City, J. Leonard Corning, M.A., M.D., of New York, had the rare opportunity of studying a number of cases of that remarkable affection known as the "caisson" or "tunnel disease," which he reported in the *Medical Record* for May 10, 1890. The disease is an affection of the spinal cord, due to a sudden transition from a relatively high atmospheric pressure to one much lower. Hence, those who work in caissons, or submerged tunnels, under an external pressure of two atmospheres or more, are liable to be attacked by the disease shortly after leaving the tunnel. The seizure never, however, occurs while the subject is in the caisson, or, in other words, while he remains under pressure.

The chief clinical features of the disease are pain, which may be relatively mild, as when confined to some portion of one or more extremities, or of frightful intensity, as when it appears in the ears knees, back, or abdomen; anæsthesia and paralysis, usually of paraplegic type; bladder symptoms, assuming the form of retention or incontinence; and, more rarely, rectal disturbances (usually incontinence).

In cases of moderate severity the patient usually recovers in a few days or weeks, while in the very severe ones he gradually loses strength, and eventually succumbs. Besides these extreme phases of the disease, there is an intermediate class of cases in which the patient, though grievously ill, may recover sufficiently to get about with sticks, or even unassisted. In these cases recovery is, however, but partial, the subject remaining more or less feeble and hyperæsthetic during the remainder of his life.

Since Triger, a French engineer, first described the characteristic pains of the caisson-disease in 1841, the affection has several times received attention at the hands of European physicians who were in a position to observe it in connection with the diving-bell, bridge-building, mining, and other operations requiring the use of compressed air.

In the United States several opportunities of studying the disease have occurred during the last few years. The most noteworthy of such occasions were the construction of the St. Louis Bridge in 1868, the Brooklyn Bridge at New York about the same time, and the Hudson River Tunnel at a later date.

The Inefficiency of Sand Filters.

Drs. Frankel and Piefke of Berlin have recently made an exhaustive study on the filtration of drinking-water through sand (*Zeitschrift für Hygiene*, No. 1, 1890). Their experiments conclusively prove, says *Medical News*, that the danger of infection from impure water is only slightly reduced by filtration through sand; bacteria passing through at all times, but in larger numbers just after the filter has been cleaned, and again after it has been in use for some time.

LETTERS TO THE EDITOR.

*** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

The editor will be glad to publish any queries consonant with the character of the journal.

On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

Census of Hallucinations.

MAY I ask for the publicity of your pages to aid me in procuring co-operation in a scientific investigation for which I am responsible? I refer to the "Census of Hallucinations," which was begun several years ago by the Society for Psychical Research, and of which the International Congress of Experimental Psychology at Paris, last summer, assumed the future responsibility, naming a committee in each country to carry on the work.

The object of the inquiry is twofold: 1st, to get a mass of facts about hallucinations which may serve as a basis for a scientific study of these phenomena; and, 2d, to ascertain approximately the proportion of persons who have had such experiences. Until the average frequency of hallucinations in the community is known, it can never be decided whether the so-called "veridical" hallucinations (visions or other "warnings" of the death, etc., of people at a distance) which are so frequently reported, are accidental coincidences or something more.

Some eight thousand or more persons in England, France, and the United States, have already returned answers to the question which heads the census-sheets, and which runs as follows:—

"Have you ever, when completely awake, had a vivid impression of seeing or being touched by a living being or inanimate object, or of hearing a voice; which impression, so far as you could discover, was not due to any external physical cause?"

The congress hopes that at its next meeting, in England in 1892, as many as fifty thousand answers may have been collected. It is obvious that for the purely statistical inquiry, the answer "No" is as important as the answer "Yes."

I have been appointed to superintend the census in America, and I most earnestly bespeak the co-operation of any among your readers who may be actively interested in the subject. It is clear that very many volunteer canvassers will be needed to secure success. Each census-blank contains instructions to the collector, and places for twenty-five names; and special blanks for the "Yes" cases are furnished in addition. I shall be most happy to supply these blanks to any one who will be good enough to make application for them. WM. JAMES.

Harvard University, Cambridge, Mass., May 10.

The Winnebago County (Iowa) Meteorites.

ON Friday evening, May 2, 1890, at 5.15 P.M., standard western time, a meteor was observed over a good part of the State of Iowa, and is described as a bright ball of fire, moving from west to east, leaving a trail of smoke which was visible for some minutes. It was accompanied by a noise likened to that of heavy cannonading or of thunder; and many people rushed to the doors, thinking it was the rumbling of an earthquake. Substantiated reports have been received from Des Moines, Mason City, Fort Dodge, Emmetsburg, Algonia, Ruthven, Brett, and Forest City. The noise was also heard at Sioux City. Some of these places were at a distance of over a hundred miles from the point where the meteor fell. It exploded about eleven miles north of Forest City, Winnebago County, in the centre of the nortnern part of Iowa, latitude 43° 15′, longitude 93° 45′ west of Greenwich, near the Minnesota State line. The fragments were scattered over a considerable surface of ground. Up to the present time, there have been found a 104-pound, a 70-pound, and a 10-pound mass, and a number of fragments weighing from one to twenty ounces each; and a part of the main mass of the meteorite is believed to have passed over into Minnesota. The pieces are all angular, with rounded edges.

This meteorite is a typical chrondite, apparently of the type of the Parnallite group of Meunier, which fell Feb. 28, 1857, at Parnallee, India. The stone is porous, and when it is placed in water to ascertain its specific gravity, there is a considerable ebullition of air. The specific gravity, on a fifteen-gramme piece, was found to be 3.638. The crust is rather thin, opaque black, not shining, and, under the microscope, is very scorious, resembling the Knyahinya (Hungary) and the West Liberty (Iowa) meteoric stones. A broken surface shows the interior color to be gray, spotted with brown, black, and white; the latter showing the existence of small specks of meteoric iron from one-tenth to four-tenths of a millimetre across. Troilite is also present in small rounded masses of about the same size. On one broken surface was a very thin seam of a soft black substance, evidently graphite (?), and soft enough to mark white paper; a felspar (anorthite?) was also observed, and enstatite was also present. I present a paper on this meteorite at the meeting of the New York Academy of Sciences, May 12, and will give full particulars at the next meeting.

This is the fourth meteorite that has been seen to fall in Iowa. The other three falls were as follows: at Hartford, Linn County, Feb. 25, 1847; at West Liberty, Iowa County, Feb. 12, 1875; and the great fall of siderolites at Estherville, Emmet County, May 10, 1879, which fall comprised over two thousand pieces weighing from a tenth of an ounce to four hundred pounds.

GEORGE F. KUNZ.

New York, May 8.