"At one side of the bottom wrapping a flap was left for the entrance of the Jossakeed or Shaman.

"A committee of twelve was selected to see that no communication was possible between the Jossakeed and confederates. These twelve men were reliable people, one of them being the Episcopal clergyman of the reservation. The spectators were several hundreds in number, but stood off, not being allowed to approach.

"The Jossakeed then removed his clothing, until nothing remained upon his person but the breech-cloth. Beaulieu then took a rope (of his own selection for the purpose), and first tied and knotted one end about the ankles; the knees were then securely tied together; next the wrists; after which the arms were passed over the knees, and a billet of wood passed under the knees, thus securing and keeping the arms down motionless. The rope was then passed around the neck again and again, each time tied and knotted, so as to bring the face down upon the knees.

"A flat river-stone of black color — which was the Jossakeed Manedo or amulet — was left lying upon his thighs. The Jossakeed was then carried to the lodge, placed inside upon a mat on the ground, and the flap covering restored so as completely to hide him from view.

"Immediately loud thumping noises were heard, and the framework began to sway from side to side with great violence; whereupon the clergyman remarked that this was the work of the Evil One, and it was no place for him: so he left, and did not see the end. After a few minutes of violent movements and swaying of the lodge, accompanied by loud inarticulate noises, the motions gradually ceased, when the voice of the juggler was heard telling Beaulieu to go to the house of a friend near by, and get the rope. Now, Beaulieu, suspecting some joke was to be played upon him, directed the committee to be very careful not to permit any one to approach while he went for the rope, which he found at the place indicated, still tied exactly as he had placed it about the neck and extremities of the Jossakeed. He immediately returned, laid it down before the spectators, and requested of the Jossakeed to be allowed to look at him, which was granted, but with the understanding that Beaulieu was not to touch him.

"When the covering was pulled aside, the Jossakeed sat within the lodge, contentedly smoking his pipe, with no other object in sight than the black stone Manedo.

"Beaulieu paid his wager of one hundred dollars. An exhibition of similar pretended powers, also for a wager, was announced a short time later at Yellow-Medicine, Minn., to be given in the presence of a number of army people; but at the threat of the grand medicine-man of Leech Lake bands, who probably objected to interference with his lucrative monopoly, the event did not take place, and bets were declared off.

"At Odanah, on the Bad River Reservation, and at Bayfield, both in Wisconsin, I obtained some variants of the above performance as seen at different times and places and by several witnesses. For instance: the Shaman at one time was tied up much as before mentioned, but with all of his clothes on; a fish-net, however, being tied above his clothes, enveloping the whole person; and horse-bells were attached to his body, so as to indicate any motion. When examined afterwards, the clothing had been entirely stripped from his person, the nets and ropes and bells placed in a separate pile in the lodge, and the clothing itself was found by direction under a designated tree a mile off; the Indians of the committee, one of whom was my informant, running from the lodge at their highest speed to the tree, and there finding the clothing, and stating the impossibility of its being transported by any human agency in advance of their arrival. In another case, occurring at night, two lodges were built about twenty feet apart. About a hundred Indians surrounded the space occupied by the two lodges with lighted torches giving the brightness of day, and a line of bonfires was built and kept in flame over the space intervening between the two lodges. The levitation in this case was by the bound Shaman in one lodge being found unbound in the other.

"It should be noted that these stories relate to a time some forty or fifty years ago, before the tricks similar to those of the Davenport brothers had become known in the civilized portions of the United States. It is a still more important fact that the French missionaries in Canada, and the early settlers of New England, describe substantially the same performances when they met the Indians, all of whom belonged to the Algonkin stock. So remarkable and frequent were these performances of jugglery, that the French, in 1613, called the whole body of Indians on the Ottawa River, whom they met at a very early period, 'the sorcerers.' They were the tribes afterwards called Nipissing, and were the typical Algonkins. No suspicion of jugglery in the sense of deception appears to have been entertained by any of the earliest French and English writers. The severe Puritan and the ardent Catholic both considered that the exhibitions were real, and the work of the Devil. It is also worth mentioning that one of the derivations of the name 'Mic-mac' is connected with the word meaning 'sorcerer;' so that the known practices of this character having an important effect upon the life of the people extended from the Great Lakes to the extreme east of the continent. It was obvious to me, in cross-examining the various old men, that the performances of jugglery were in each case an exhibition of the pretended miraculous power of an individual, whereby he obtained a reputation above his rivals, and derived subsistence and authority, by the selling of charms and superhuman information. The charms or fetiches, which still are sold by a few who are yet believed in, are of three kinds, — to bring death or disease on an enemy, to lure an enemy into an ambush, and to create sexual love."

The Unusual Prevalence of Fog during May.

The belt of frequent fogs during the past month, as shown graphically on the Pilot Chart for June, extended well up into the Gulf of St. Lawrence, and across the Atlantic from shore to shore. While the amount encountered off the Grand Banks and the coast to the westward is but little in excess of the normal for May, yet such great frequency of dense fog-banks east of the 40th meridian is very unusual. It may be attributed almost entirely to the unusual prevalence in that quarter of the ocean of southerly winds, which lasted for fourteen days during the first two decades of the month. These winds bring the warm, moist atmosphere from lower latitudes far to the northward, and into contact with the colder air of more northerly regions, this contact resulting in the precipitation of the moisture in the form of fog. Adding to this the fact that most of the depressions noted during the month passed well north of the 50th parallel after reaching the 40th meridian, thus lessening the clearing effect of their north-westerly winds, it will be seen very readily that the conditions were peculiarly favorable to the development of fog along the transatlantic routes.

Early in the month, small patches of fog were reported, also, to the westward of Bermuda, about the 70th meridian, accompanying north-westerly winds blowing toward a slight depression in about 32° north and 63° west, on the 2d and 3d. The dense fog along the coast north of Hatteras on the 6th, which led to the collision between the British steamship 'Benison' and the American steamship 'Eureka,' by which the latter was sunk fifty-six miles east-south-east from Cape Henry, was due to the prevalence of southerly winds in the western quadrants of an area of high barometer about the Bermudas, which, blowing up the coast from over the Gulf Stream, came into contact with the cold water of the inshore current, with the usual result.

MENTAL SCIENCE.

Illustration of the Play-Instinct.

AN article entitled 'The Story of a Sand-Pile' would not at once suggest any thing of interest to the psychologist; nevertheless the story as told by Prof. G. Stanley Hall (*Scribner's Magazine*, June, 1888) is full of suggestiveness to one approaching the study of mind with an appreciation of all the various aspects that mental phenomena assume in the world of nature. The story of the 'sand-pile' tells of two boys who had the advantage of playing with a load of sand placed for that purpose in the back-yard. This at once became the centre of all their interests, and by a gradual growth assumed the appearance of a miniature community. Roads were laid out, coal placed in the ground to be afterward discovered, and a sort of cave-dwelling erected. The next summer the evolution went on, fortunately undisturbed by parental suggestions.

The house became a board with another slanted against it; then it was two bricks and a board on top. A bit of wood suggested to one of the boys a horse, and that became a horse; others being made like it, at first very rude, and afterwards with all the refinements that a scroll-saw could add. Cattle were made and added to the houses, there being a remarkable conservatism in adhering to an original model, though the boys were able to do better work. Before many summers there was a community modelled quite closely after the village in which they lived: crops were raised, stacked, and sold, as in town. Furthermore, the men and women of the 'sand-pile' were named Bill Murphy, Charles Stoughton, Peter Dana, etc., — names of real men in the village; and the personality of the real individual, that of the puppet and of the boy who owned it, — for other boys had been admitted by this time, — were strangely confused. If the real Farmer Murphy had done any thing disreputable, the boys threatened to suspend the boy who owned the puppet Farmer Murphy from the 'sand-pile.' The boys take their men along in their pockets on a pleasure-trip, send them in letters to distant friends to have them returned, and be said to have seen distant places. "The best man has travelled most, keeps his farm in the best order, has most joints in his body, keeps dressed in the best coat of paint, and represents the best farmer in town, and is represented by the best boy."

The industrial evolution of this agricultural community strikingly reminds one of the real evolution in the history of the race. The plough, the wagon, and so on, can be seen in the several stages paralleled by the relics in museums. The political organization reflects that of the town, as well as that of primitive communities. Money was first made of a kind of card-board, but, owing to the possibility of counterfeiting, felt gouged out by an instrument was substituted. At the beginning of the season ninety dollars and fifty half-dollars were given to each boy. So real were these coins to them, that silver is said to have been refused for the felt, the varying intensity of the play-spirit being recorded in the silver value of the felt money. When a grocer — the youngest boy — failed, he was at first aided, and then meetings held to consider the case. "One proposition was a general *pro rata* subscription; another was a communistic redistribution of the money of the community. These schemes were successfully opposed, however, and it was at last agreed to inflate their first currency by issuing enough money to give each boy an additional sum of ten dollars. While this matter was under discussion, and redistribution was expected by some, prices were affected, and a few sales were made at prices so high as to cause embarrassment later."

As the boys grow older, the institution begins to lose its reality, and the circle of their interests changes. Moreover, "the golden age of this ideal little republic has already passed," and "a period of over-refinement and enervating luxury" is likely to end its career. Self-consciousness and the desire for approval replaced natural interest. The parents regard the educational advantages of this 'sand-pile' as outweighing the eight months of school-work: it cultivates co-operation, justice, and reflection; leads to industrial skill, saves idleness, and prevents bad habits. Its educational import is thus characterized by Professor Hall: "Had the elements of all the subjects involved in the 'sand-pile' — industrial, administrative, moral, geographical, mathematical, etc. — been taught separately and as mere school-exercises, the result would have been worry, waste, and chaos. Here is perfect mental sanity and unity, but with more variety than in the most heterogeneous and soul-disintegrating school-curriculum. The unity of all the diverse interests and activities of the 'sand-pile' is, as it always is, ideal."

HEAD-GROWTH IN CAMBRIDGE STUDENTS. — Mr. Francis Galton makes an interesting report on measurements of the heads of Cambridge (England) students, which we owe to Professor Venna (*Nature*, May 3). What is called a 'head-product' may be fairly regarded as representing average brain-volumes. It is obtained by multiplying the maximum length of the head by its maximum breadth and its maximum height above a certain plane. This result represents the contents of a rectangular box that would just fit over the head. This is only rudely proportional to the brain-mass in individuals, but would be closely proportional to it in the average of many cases. The result of the measurements, which have been taken within the last three years, is as follows: —

Ages.	Class A. 'High-Honor' Men.	Number of Measurements.	Class B. The Remaining 'Honor' Men.	Number of Measurements.	Class C. 'Poll' Men.	Number of Observations.
19	241.9	17	237.1	70	229.1	52
20	244.2	54	237.9	149	235.1	102
21	241.0	52	236.4	117	240.2	79
22	248.1	50	241.7	73	240.0	66
23	244.6	27	239.0	33	235.0	23
24	245.8	25	251.2	14	244.4	13
25 and upwards	248.9	33	239.1	20	243.5	26
		258		476		361

In spite of many irregularities, the following conclusions may be fairly deduced from these figures: (1) that while, in the population at large, brain-growth ceases after the age of nineteen, this is not true of university students; (2) that men who obtain high honors have considerably larger brains at nineteen years than those who do not; (3) that this predominance is reduced to about half its extent at the age of twenty-five, the brain of the 'high-honor' man increasing by about three per cent, that of the 'poll' man by about six per cent, in this period; (4) that the 'high-honor' men are presumably a class both more precocious and more gifted than the others.

AN INTERESTING MEMORY-TEST. — Mr. H. H. Ballard publishes in the *Journal of Education* for May 3 the result of a test of the memories and receptive powers of school-children. The sentence, "Your redemption from the distress into which you have fallen is in your own hands, and in no wise depends on forms of government or modes of election," was carefully read to one of ten selected pupils, who repeated it as exactly as possible to the next scholar, and this one to the third, and so on to the tenth. The tenth pupil wrote down what he received from the ninth. In one case the sentence emerged from this process as, "The redemption of your distress is in your own hands;" in another it was, "The invention which has fallen into your hand;" and the sentence had dwindled into this already at the sixth pupil. In another case the sentence was whispered instead of distinctly read, and the process of calling on the imagination when the senses give no clear impression is illustrated in the result, which was, "The attempts into which we have fallen during the government election are very low." In the Pittsfield, Mass., High School the sentence reduced to, "Redemption is in your own hands, and depends upon no formal government nor love." In the senior class of another high school, in which the average age of the pupils was eighteen years, the result was, "Our redemption for our destruction has nothing to do with us." In still another high school it was, "Your distress into which you have fallen is by no means the fault of government." A set of eight-year old pupils reduced it to, "The redemption that lies in your hand is done;" and the first class of the high school in the same town made it, "Your redemption into which you have fallen is your own fault." In one school the experiment was modified: two pupils from each of five grades were selected, and the sentence clearly read aloud to them all. After a minute's interval, each of the ten wrote down what he could of the sentence. The sentences written by one pupil of the highest, one of the middle, and one of the lowest grades were these: "Your redemption from the distress into which you have fallen lies in your own hands, and in no wise depends on the government or manner of election;" "Your redemption from the distress into which you have fallen is in your own hands, and depends in no wise upon the forms of government or the

modes of election;" "Your redemption and distress in which you have fallen depends on yourself, and in no wise on the government or its mode of election." Although not one of the ten got it perfectly accurately, yet many were very near it; and they all show how much more the wear and tear on the sentence is in passing through ten mouths than through one. By the other process one accumulates the combined inaccuracies of all, and one pupil with a very poor receptive organ in the middle of the ten prevents the circulation of a good repetition after him. After this the sentence was passed through the ten pupils arranged in order of grade, and issued as, "Your redemption from the distress into which you have fallen depends entirely upon yourself, and by no means upon the forms of government or helps from education." The sentence here selected is quite a difficult one, but an easier one from Emerson was hardly more successful. The sentence was, "All things are double, one against another, — tit for tat, an eye for an eye, a tooth for a tooth, blood for blood, measure for measure, love for love," — and the result, "All things are good for one another." Although the test, as thus applied, is too complex to allow valid inferences to be drawn from it, it at any rate shows how difficult it is to repeat accurately what has been heard, as well as how little confidence is to be placed in the declarations of persons reporting the very words of a conversation held weeks or months before; it illustrates, too, in a simple form, the process by which a simple tale becomes an elaborately embellished narrative by passing through several hands; and perhaps it indicates that the powers of careful attention and retention need more systematic training than is devoted to them in the ordinary school-work.

HEALTH MATTERS.

SEA-SICKNESS. — Dr. W. H. Gardner, U.S.A., in a letter to the *New York Medical Record*, reports having treated many cases of sea-sickness with oxalate of cerium, in ten, fifteen, or twenty grain doses, every two or three hours. He believes that seventy-five per cent of all cases that occur will be cured by this remedy. As many of our readers are about to leave the United States for a summer's jaunt in Europe, an admirable opportunity presents itself for testing Dr. Gardner's remedy. As oxalate of cerium is a recognized drug to be administered in cases of nausea and vomiting, we see no reason why it should not be efficacious in sea-sickness.

FUNCTION OF THE BILE. — Among the many mooted questions in physiology is the function of the bile, and every new fact bearing upon this important subject is of great value. Dr. Dastre, as reported in *Le Progrès Médical*, recently communicated his observations to the Société de Biologie of Paris. He said that he had previously proven that the presence of bile in the stomach during different periods of digestion did not take from the gastric juice its digestive power: consequently it could not be the cause of vomiting or of severe gastric troubles. At the present time, owing to the success of two operations for cholecysto-intestinal fistula, he thought himself in a position to conclude that the bile contributed, as well as the pancreatic juice, to the digestion of the fats, — an opinion which is counter to that expressed by Claude Bernard. In fact, the two animals being in good condition four months after the establishment of the fistula, they had been given a meal of fat and milk, and then slaughtered during full digestion. The examination showed with absolute clearness that the lacteals were transparent between the stomach and fistula, and, on the contrary, entirely white and milky below the fistula; that is to say, where the bile had been able to get: consequently, if observation on the rabbit shows us that the bile alone is unable to emulsify the fats, the preceding experience shows us that the pancreatic juice alone is also powerless. They must be mingled, in order to act well. In other words, bile, as well as the pancreatic juice, takes part in the digestion of fats.

A NEW HYPNOTIC. — In the *New York Medical Record*, Dr. E. C. Wendt describes sulfonal, a new hypnotic. Chemically this substance enjoys the euphonious designation of 'diæthylsulfondimethylmethan.' It occurs in the form of large, flat, colorless crystals, which are tasteless, and devoid of smell. Sulfonal is soluble in eighteen to twenty parts of boiling water. In tepid water the solubility is only about one to one hundred. The crystals dissolve more readily in alcohol and alcohol mixed with ether. Acids and alkalies do not affect the composition of the body, which appears to possess considerable chemical stability. The crystals melt at a temperature of 275° to 260° F. According to Professor Kast of Freiburg, sulfonal is an hypnotic pure and simple. It does not compel sleep through a paralytic effect on the nerve-centres, nor through a profound impression produced upon the vascular system. From numerous experiments on animals, and many clinical observations on man, the action of this new remedy would appear to consist merely in the intensification of those factors that lead to natural sleep in the physiological sense, or in supplying the periodical desire for sleep in those cases where it is wanting. It is for this reason, probably, that the range of applicability of sulfonal is a more limited one than that of some other drugs employed as hypnotics. But sulfonal has none of the disadvantages inherent in the deadly narcotics, and it is much more reliable than any of the bromides. This new body does not disturb digestion, it is not constipating, it has no unpleasant after-effects, it is perfectly harmless, it does not invite the formation of 'a habit,' and, finally, it does not appear to lose its efficacy even when employed for a long period.

SMOKERS' VERTIGO. — Dr. Decaisne is reported in the *New York Medical Record* as having recently investigated a number of cases of vertigo in smokers. Out of sixty-three patients, forty-nine were between fifty and sixty-six years of age. More than half of them suffered, in addition, from digestive troubles, with constipation alternating with diarrhœa, insomnia, palpitations, dyspnœa, and diuresis. In a third of the number there was marked intermittence of the pulse, and granular pharyngitis, while others suffered from aphthæ, amblyopia, etc. Thirty-seven were persons who smoked habitually on an empty stomach; and these suffered from vertigo, principally in the morning. The vertigo generally coincided with suppression of perspiration and diminished excretion of urine. The treatment consisted mainly in regulating or suppressing the cause, but thirty-three out of thirty-seven patients ceased to suffer on merely refraining from smoking on an empty stomach.

A LEPER INVASION OF THE UNITED STATES. — It is reported that many lepers are leaving the Sandwich Islands, as soon as the disease manifests itself, in order to prevent being banished to the island of Molokai. Mr. Putnam, consul-general at Honolulu, believes the number of these emigrants to be considerable, and many if not most of them flee to the United States.

RACE AND INSANITY. — In an article entitled 'Race and Insanity,' published in the *American Journal of Insanity*, Drs. Bannister and Hektoen, physicians of the Illinois Eastern Hospital for the Insane, express the opinion that there is little doubt but that insanity is influenced by race. From the statistics of three institutions in which insane persons are treated they draw the following conclusions: 1. That in the white race the depressive types of mental disease are most frequent in the Germanic and Scandinavian peoples, and least so in the Celts: the reverse of this appears to be the case as to the exalted or maniacal types. 2. That general paralysis is not a disorder to which any race is immune, but one that depends upon causes independent of racial or national peculiarities. 3. That the well-known fact that insanity is much more common amongst the foreign-born than amongst natives in this country, is not to any great extent explainable by the shipment of the defective classes of Europe to America. The 'cranks' and epileptics and other neurotic individuals do not appear to be represented, in due proportion even, amongst the foreigners in our asylums. The cause of the excess of foreign-born insane in this country is, it seems probable, to be looked for mainly in the fact, that, supposing the immigration to include only its proportion of persons below the average of mental strength and flexibility, the change of scene and associations, the difficulties of beginning life among them, disappointments, homesickness, and all the other accidents and trials that befall the new-comers, together contribute to break down mentally a vast number who under other circumstances would have escaped, and largely contribute to the mass of insanity in this country.