The Monkey in the Man.

To see the monkey in the man you have only to study the faces, bodies, and habits of babies. Such is the theme of a very interesting article contributed by Mr. S. S. Buckman to the new number of the Nineteenth Century. The actions of children are, indeed, he says, like "ancient monuments of prehistoric times. The human infant is an interesting object of scientific research, and even a cross baby should be calmly contemplated by the philosophic mind." The Westminster Gazette subjoins a dozen of the numerous illustrations which Mr. Buckman gives to show how survivals of our simian ancestry may be found by any nursery philosopher:

1. Monkeys are snub-nosed (simian). So are babies.
2. Babies have pouch-like cheeks. To judge from ecclesiastical monuments, this characteristic is supposed to be specially angelic. It is really monkey-like. Baby cheeks are the vestiges of cheek pouches, possessed for storing away food, as in Cercopithecus, a monkey in which this habit of storing may be observed at the Zoological Gardens, if visitors feed it.
3. At the base of the vertebral column babies have a deep circular depression. This is the mark of the monkey's tail.
4. Babies (as Dr. Louis Robinson has shown) have superior arm power and very short legs. So have monkeys.
5. Babies in catching hold of anything don't use their thumbs, but clasp it between the fingers and palm. This is the action of monkeys in going from bough to bough.
6. A baby can move any of its toes independently, and it can move them one from another so as to make a V between any of them. As it grows older it loses this power and also the power of turning its ankle; but that it has such power over its muscles when young points to ancestors who used their feet more than their hands as organs for picking up small objects; and who relied on their arms and hands for supporting their bodies.
7. Babies go to sleep on their stomachs with their limbs curled up under them—a survival from our four-footed ancestors.
8. Babies are rocked to sleep—an imitation of the swaying to and fro of the branches where our monkey ancestors lived. Even our nursery ditties ("Lullaby baby on the tree top") point back to the arboreal ages.
9. The stair-climbing instinct of babies (like the tree-climbing propensity of boys) show:
10. The fruit-stealing instinct is a survival from monkeydom.
11. Children are fond of picking at anything loose—because monkeys pick off the bark from trees in order to search for insects.
12. Children are very fond of rolling. This points to the time when our ancestors had hairy bodies tenanted by parasites, and allayed the irritation by rolling.

A DOUBLE ELM TREE.

We are indebted to Mr. R. D. Wirt, superintendent of the Independence (Mo.) Water Works Company, for the following: You will find in this photograph a peculiar freak of nature. The tree is an ordinary elm, and can be seen in a good healthy state of growth on the farm of Captain L. P. Williamson, two miles north of Independence, Mo. The trunk at each end of the bow is some 20 inches in diameter, and it is a very difficult matter to tell which is the original root. Hence our amateur artist, P. H. Grinter, has imprinted on the photograph the question "Which is it?"

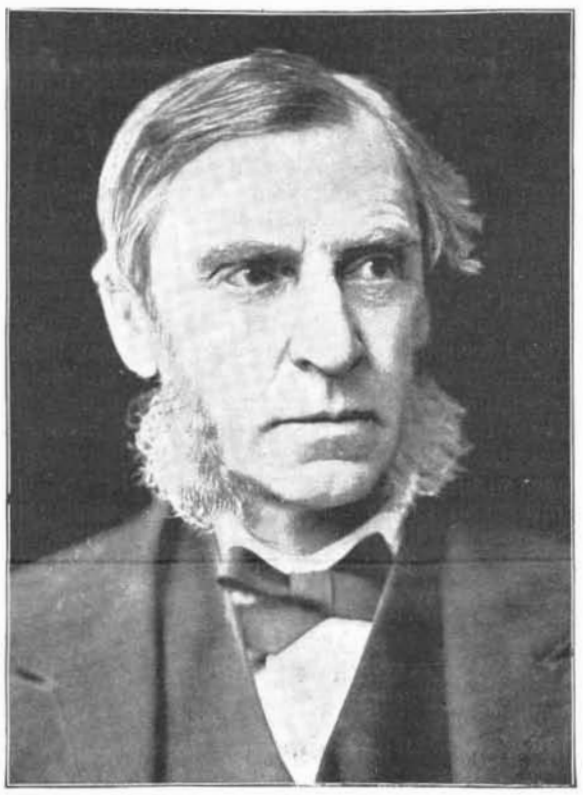
The Dead Sea of America.

The dead sea of America or Medical Lake, as it is called, because of its medicinal qualities, is situated on the great Columbian plateau in Southern Washington. It measures a mile in length and from a half to three-quarters of a mile in width and has a maximum depth of 60 feet. It stands at an altitude of 2,300 feet above the level of the sea. The chemical composition of this lake is nearly identical with that of the Dead Sea of Palestine, and like its eastern counterpart, it is almost devoid of life and no plant has yet been found growing near its edges.

DEATH OF JAMES ANTHONY FROUDE.

The famous historian, religious essayist, and biographer, James A. Froude, died on October 20, at the age of seventy-six years.

"The death of Mr. Froude," says the New York Evening Post, "ends a life which, in its interests, its emotions, and its activities, in more ways than one reflects the strange transition through which England has been passing during this century. He was one of the very few survivors of that extraordinary group of



JAMES ANTHONY FROUDE.

young men who, over fifty years ago at Oxford, illustrated in the sphere of religion the power of the all-pervading spell of the romantic spirit in its revolt against the rationalism, the common sense, and the placid self-content of the eighteenth century, which found their shapes in the utilitarian Liberalism of the day."

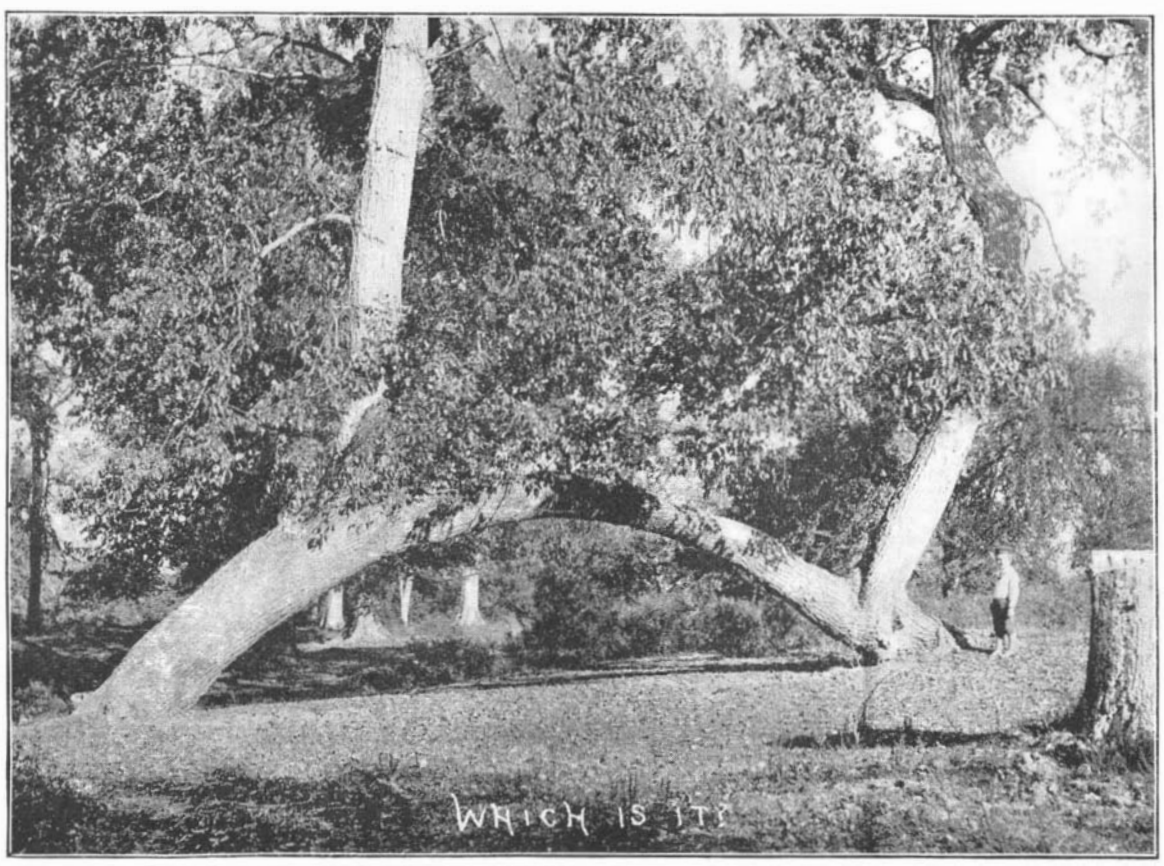
Mr. Froude was the son of Archdeacon R. H. Froude. His education was obtained at Westminster and at Oriel College, Oxford, where he was graduated in 1840. He took his master's degree, and in 1842 he carried off the English prize with an essay on "The Influence of the Science of Political Economy on the Moral and Social Welfare of the Nation." He became a fellow of Exeter College in the same year, and two years later he was ordained a deacon in the Established Church of England. He had no taste for clerical duties, however, and he devoted himself to literary work. He fell under the influence of Newman, then an English Churchman, subsequently a cardinal in the Roman Catholic Church, and wrote "The Lives of the English Saints." In 1848, when but thirty years of age, he published the book which created such a sensation, "The Nemesis of Faith." In that work he proclaimed himself a rationalistic doubter. His attack on Bibliolatry and his theory of religion brought upon him the censure of the University authorities and the loss of his fellowship. He was very successful, however, as a magazine essayist, and one of his essays, on the Book of Job, was reprinted in separate form. Two years later Mr. Froude published the first two volumes of his "History of England," and the book, although sharply criticised, received great popular indorsement. The succeeding volumes of the work were issued from time to time until the conclusion in 1870. In 1869 he was installed rector of the University of St. Andrew's, the degree of LL D. being then conferred on him. In 1872 he resigned his diaconate in the English Church under the Clerical Disabilities Act.

Nothing excited more comment in Mr. Froude's career than his work as Carlyle's literary executor and his personal and professional hostility toward the historian Freeman. With regard to these matters, the New York Tribune says:

"Much of the blame was due to Carlyle, whose indecision had grown upon him with his years, and who, in addition to the clause in his will placing his papers at Froude's disposal, seems also verbally to have put them in the possession of his niece, Mrs. Alexander Carlyle, who had long been an inmate of his family. The 'Reminiscences' realized nearly £2,000, and Froude gave Mrs. Carlyle about £1,600, but the censure on the editing, partly due to Froude's haste and partly to the fact that he made revision impossible by turning over the papers in his possession too quickly to Mrs. Carlyle, led the latter to endeavor by legal means to prevent the publication of Froude's own work. The matter was quieted at law, but criticism was busy with it for more than half a decade.

"When Lord Salisbury appointed him as the successor of Freeman at Oxford, the friends of the latter manifested a feeling of bitter annoyance. Freeman himself in his lifetime had sharply criticised Froude's method as a historian, to some extent justly. But it came to be pretty well understood that no reflection was intended in the choice of the new professor upon the memory of the one who had passed away. Nevertheless, Froude's inaugural address, though studiously elaborate, sounded now and then a note of defiance. For example, he spoke of Freeman as one 'who along with his asperities had strong masculine sense,' and said of his critics: 'Being omniscient already, I conclude they did not feel that they had more to learn. Like St. Paul, I may say, I labored more abundantly than they all. Like St. Paul, I say also, I speak as a fool.'"

Mr. Froude's conception of the historical method was formulated in a lecture on the science of history, delivered at the Royal Institution in 1864. "It often seems to me," he said, "as if history was like a child's box of letters, with which we can spell any word we please. We have only to pick out such letters as we want, arrange them as we like, and say nothing about those which do not suit our purpose." Critics have described him as a special pleader, but it is the general verdict to-day that he has been indispensable and has, by his unconventional methods, restored equilibrium in many cases where views as one-sided as his own had usurped the authority of history.—Literary Digest.



A DOUBLE ELM TREE.

Good Maxims from the Keystone.

A well known banker says he owes his success to observing the good advice of an older friend, who told him to keep good company or none. Never be idle. Cultivate your mind. Make few promises. Live up to your engagements. Keep your own secrets When you speak to a person, look him in the face. If any one speaks ill of you, let your life be so that no one will believe him. Live within your income. Small and steady gains bring the kind of riches that do not take wings and fly away. Earn money before you spend it. Never run into debt unless you see a sure way to get out of it. Never borrow if you can possibly avoid it. Do not marry until you are able to support a wife. Never speak evil of any one. Be just before you are generous. Save when you are young and enjoy your savings when you are old.

The Influence of Occupation on Eyesight.

An interesting paper was read by Mr. Simeon Snell at the recent meeting of the British Medical Association at Bristol, on the "Relations of Some Occupations to Eyesight." Mr. Snell, as ophthalmic surgeon to the General Infirmary, Sheffield, has had unusual opportunities of seeing and treating affections of this kind, and his observations are of a highly practical nature. He refers in the first instance to the effects of bisulphide of carbon, which was the subject of an inquiry made in 1885 by a committee appointed by the Ophthalmological Society. This heavy, transparent, ill-smelling fluid is used as a solvent of sulphur chloride, and is the agent effecting the "vulcanization" of India rubber. The process by which the rubber is impregnated with the sulphur chloride is termed "curing," and during this process heavy fumes of the bisulphide are given off. The vapor was much employed some years ago as a powerful irritant of the conjunctiva, causing abundant lachrymation, by which it was thought nebulæ of the cornea left after ulcers could be washed away or cleared up.

Mr. Snell states he has seen one case of amblyopia which he considers was due to this agent, since the affection supervened after exposure to its influence and disappeared when the man was engaged in another part of the works. Another chemical agent exercising a deleterious action on the eye and on the health generally is dinitro-benzol. This substance is used in the manufacture of explosives, and the patients affected were chiefly those engaged in mixing or grinding the material. It induces amblyopia or dullness of vision, and on inquiry no less than five cases were discovered. The toxic influence of tobacco when chewed may now be regarded as a well established fact, but Mr. Snell endeavored to ascertain whether Galezowski's statement that visual disturbances occurred in those engaged in the manufacture of tobacco as a consequence of the inhalation of nicotine powder was correct.

His observations are, however, opposed to this view, and he quotes the opinions of Mr. Shears, who visited a large tobacco factory where 1,200 men and women are employed; of Mr. C. Lee, who made similar observations at a large factory at Chester; and of Dr. Dowling, who examined some of the operatives in a factory where 3,000 hands were employed, all of whom were opposed to the statement made by Galezowski. In particular Dr. Dowling found that those who did not smoke were uniformly free from troubles of vision of a toxic nature, and that the females were almost universally free from the trouble. The cases recorded by Mr. Priestley Smith and Valude show that iodoform must be added to the agents causing toxic amblyopia; but inquiries made for Mr. Snell in iodoform manufactories are to the effect that no cases have been observed of impairment of vision attributable to the manufacture of this substance. The prejudicial action of lead has long been known, but Mr. Snell mentions a hitherto unsuspected mode in which the toxic influence of this metal may be produced.

Saturnine amblyopia occurs, it appears, among the file cutters of Sheffield, and this is due to the circumstance that the file is placed on a lead bed, and each time it is struck with the chisel sufficient of the lead is raised to cause by its inhalation the symptoms of toxic amblyopia. It may, however, reasonably be suggested that the lead is introduced by the contact of the hands with it and its ingestion with food. But the most interesting part of Mr. Snell's paper is that where he discusses the influence of intense light and excessive heat. His own observations do not support the statements made by others that glassblowers are frequently the subjects of cataract. We agree with Mr. Snell. When Salviati's shop was in work at Olympia we made some inquiries to ascertain whether there was any truth in the statement that the workmen commonly lost their vision at the age of forty, but two of the men working there were themselves long past that age and were not aware of any cases of blindness induced by the glare of the furnace in their fellow workmen.

Mr. Snell has ascertained that there is a very marked difference in the way a temperature is borne when it is below 2,000° Fah., and when above that heat. Up to that degree a man can look at the metal in a furnace with comparative ease, but before it reaches 3,000° he is compelled to wear colored glasses. Now in cast iron furnaces the heat of the metal is from 1,800° to 2,000° and the men take no precautions; but the heat of molten steel is from 2,700° to 2,800°, while the heat of the gases in the furnace would be about 200° or 300° more, and the men in attendance have to wear dark blue glasses to protect their eyes. The heat of the metal in the Bessemer process is higher still, increasing to 3,000° or 3,200°, but the metal has not to be so long or so carefully watched as in the Siemens furnace. In none of these cases, however, has Mr. Snell been able to associate any deep or superficial eye lesion as a result of the exposure of the eye to intense light and heat.

There is still another source of light which has been found to exert a prejudicial influence on the eye—namely, electricity; exposure to the light employed in electric welding—and supposed to be equal to 8,000 candles—causes sharp conjunctivitis, with great pain and lachrymation, and, if it be allowed to enter the eye, optic neuritis, with retinitis and a central scotoma in the vision, is extremely likely to occur. The effects are due to the chemical rays, which are most intense toward the violet end of the spectrum, and the men are obliged to use a screen made of dark ruby, non-actinic glass. These, with many other details, are interestingly given in Mr. Snell's paper.—The Lancet.

Electric Conduit Railways.

At the regular monthly meeting of the New York Electrical Society on November 1, Mr. Joseph Sachs read an interesting paper entitled "Is there a Solution of the Electrical Conduit Railway Problem?" The Electrical World gives the following report:

Mr. Sachs gives as reasons why success has not been attained with electrical conduit railways thus far that most of the projects were immature, the inherent difficulties are great and the cost of construction very large; on the other hand, he thinks the maintenance would seem to be less expensive than with the trolley.

After describing a large number of conduit systems, Mr. Sachs said that there was not much of a choice between them, as there had apparently been nothing practical evolved from the extremely large number described, except the plain open slot conduit and continuous wire system. This is the one that is in actual operation and has given satisfaction both at Budapest and at Blackpool, England, but he considered it doubtful whether it can be made practicable in this country, where the climatic and local conditions are different.

Mr. Sachs gives it as his opinion that we will never get a conduit system which can be put in for $20,000 a mile, single track, and that it may be as high as $30,000 or $40,000 per mile, single track.

The system which is to be installed upon Lenox Avenue by the Metropolitan Traction Company was then described.

The ordinary conduit yoke will be employed, and at the manholes, 30 feet apart, the insulators, which are of rectangular form and of soapstone, will be located, and supported in cups embedded in sulphur. At the top of the insulators is fastened an arm of iron. To this arm is fastened a contact conductor of channel iron. The contact shoe comes down to the slot and has two arms which press outwardly from the single supporting bar which rests on the rails, making a continuous rubbing contact. There being two conductors used, there is no structural return.

The insulators are located in the manholes and are easily accessible. They are quite a distance apart and the voltage is low, it being intended to use about 250 or 300 volts. The conductors are very nearly directly under the slot, which was apparently the objection in some of the first systems, but the peculiar construction and location of the insulators in this system may prevent any trouble from this source.

An extended discussion followed the reading of the paper. Mr. C. B. Fairchild thought that it was a question whether there is any extraordinary demand for an underground electric system, and he quoted from an authority who stated that "a successful underground system would be a great calamity for the street railway interests of this country, from the fact that if one were adopted every little city throughout the country would demand that all the wires be put underground, and it would ruin nine-tenths of the street railways of this country if they were compelled to operate under such a system." He described the underground system which is now being placed in Washington, D. C. The yoke is about the same as has been used in Washington on the cable construction, a little heavier, perhaps, and the conduit is about 25 inches deep and 18 inches wide; the conductor is a four-inch channel iron, four inches deep, and supported from the top instead of the bottom, as will be the case in New York City, and headed with trunnion bands to provide for expansion. The cost is estimated to be more than the cost of cable construction, and Mr. Fairchild states that the Siemens-Halske Company, who proposed at one time to put in an underground system, admitted to him that the cost would be more than the ordinary estimates for cable construction. In New York City, the cable roads were built for not less than $150,000 per mile, single track; but in Washington the cost is about $30,000 per mile, of single track; ordinarily, however, the cost would be from $60,000 to $75,000 per mile with single track.

The difficulty of contraction and expansion in conduit conductors was referred to, and Mr. Fairchild stated that in Washington, where the temperature in the conduit varied from below freezing to 140 degrees, a great deal of difficulty had been experienced in this connection. Mr. Fairchild fears that there will be difficulty in the Washington system through using a porcelain insulator, as he thinks it will require a material less hygroscopic, such as mica or something of that kind. He referred to the extreme dampness of conduits and thought that an economical street railway cannot run with a 300 volt current, at least 500 volts being required. A heavier construction will also be required to support electric cars than required for cable cars, on account of the motors, and the cost will be correspondingly great.

Electric traction is very much harder on the rails than cable traction where the headway is under three minutes. Even where the rail is from 75 to 80 pounds, the cost of maintaining the track where electric cars are used is surprisingly great. In answer to a question as to the comparative cost of the cable and electric roads, Mr. Fairchild stated that the cars in both cases would cost about the same, but that the motor would cost from ten to twelve times as much as the grips, or a difference of about $1,000 per car.

Mr. R. R. Lundell stated in regard to the Johnson-Lundell system which is now being tried at 59th Street, that the storage battery used is a very small one, but it carries the car through emergencies and will bring it back to the station in case of a breakdown. Through its use expensive electric conduit construction is done away with, also complications such as switches and cross-overs. Mr. Lundell gives as reasons for the adoption of this system that in New York City the open slot, owing to the size of the conduit, would necessarily be very expensive. The Johnson-Lundell system, he said, could consequently be installed much cheaper. The electro-magnetic device was adopted, as the electromagnet has shown itself to be positive. He stated that they are now ready to put down the system at $30,000 per car mile double track for the electrical equipment without rails or ties, and Mr. Sachs added that the track would cost about $20,000 a mile additional. The battery weighs only 1,500 pounds and takes care of itself; it is always sealed up and charged continuously. The voltage is 300.

Mr. Field stated that in the case of one road which he put down, the cost of the trolley system was as high as $75,000 per mile for a single track, which included $20,000 per mile for paving the streets from curb to curb. He stated that the Badapest system, as modified in America, would fill all the requirements of American conditions. He said that the conduit which is going to be put in in New York City is a modification of the Siemens-Halske conduit.

Mr. E. A. Merrill described the three-wire system, with which, he said, there was difficulty in balancing. At Bangor, Me., in going up steep hills, very frequently they would have to take the trolley off one side and put it on the other wire. The same difficulty in balancing was found in Milwaukee. He stated that he knew of one road where the cause of the difficulty was not discovered, but the road was abandoned. He referred to the much greater investment in copper at 300 volts, which would be four times greater than at 600 volts, and said that it was not a very large road that puts in an investment of $100,000 to $150,000 in copper, so that at a reduced voltage it can be seen what the difference would amount to.

Mr. Fairchild questioned a statement to the effect that electric and cable roads in certain conditions were operated at about the same cost per car mile, as he had found that cable roads as a general thing, under the same conditions, are cheaper than electric roads.

Enlargement of New York City.

The question of the enlargement of the area of New York City was submitted to the popular vote of the inhabitants interested at the recent November election, and the project was indorsed by a small majority. If satisfactory terms can be arranged, it is probable the consolidation will be effected.

The area and population of each of the cities and towns which it is proposed to consolidate are as follows:

Place.	Area in square miles.	Population.
New York City	38·85	1,801,739
Brooklyn	28·99	957,958
Flatbush	5·69	12,625
Flatlands	12·79	4,234
Gravesend	10·96	8,418
New Utrecht	7·96	9,129
Richmond County	57·19	53,452
West Chester	15·50	10,029
Part of the town of East Chester	1·91	4,612
Part of the town of Pelham	2·83	3,541
Flushing	29·65	19,803
Part of the town of Hempstead	17·86	17,756
Jamaica	33·50	14,441
Long Island City	7·14	30,506
Newtown	21·32	17,549
Jamaica Bay	25·63	
Total	317·77	2,965,792

Artificial Limbs.

We do not advise any one to have a leg cut off for the mere luxury of enjoying the use of an artificial limb; but if disease or accident renders the mechanical substitute a necessity, then we strongly recommend the invention of A. A. Marks, 701 Broadway, New York. A committee of the Franklin Institute investigated the subject of artificial limbs a few months ago and reached an official conclusion that the Marks patented invention was one of superior excellence, and from a humanitarian point of view quite important; in which opinion we fully coincide.