### NEW YORK ACADEMY OF SCIENCES.

At the regular meeting of the Academy, held in their rooms, No. 6 West 31st street, on Monday evening, January 21, Rev. E. P. Thwing read a paper on "Treatment of Seasickness by the Trance State." The speaker described his experiments, made on many different passengers during his frequent trips across the ocean and the English channel. In most cases he was able to put the sufferer into a trance without the use of "passes" or looking him directly in the eye. The usual method pursued was to approach the persons from behind, place his hands on their head and press gently on the temporal region, uttering a few commonplace words in an assuring tone. In one case, that of a Welshman who could not understand English, pantomime was employed. Persons of different ages and of both sexes were experimented upon. After being in the trance state for a few minutes they were recalled by the words "all right," or something similar, when the sickness was found to have disappeared, and the appetite at once restored. The writer had recently employed this trance state instead of anæsthetics where minor but painful surgical operations had to be performed. Three or four such cases were then described by Dr. Jarvis, who had performed the operations, and one of the patients was present. It was expected that Dr. Beard would also be present, but a sudden illness, which has since proved fatal, prevented his attendance. Dr. Newberry, president of the Academy, mentioned having witnessed similar cases of mesmeric anæsthesia some twenty-five years ago.

The second paper of the evening was entitled "Notes on the Botany, Geology, and Resources of Southern Texas and Chihuahua," by Professor J. S. Newberry. The speaker, who had just returned from a month's absence, during which he visited the region described, gave a very interesting account of what he saw. The Professor brought home with him a specimen of the *sotold*, a large and succulent kind of cactus used by the natives in making an alcoholic drink not unlike the pulke distilled by the Mexicans. In the arid plains naught but prickly vegetation is found, while in other places the *agave* or century plant abounds, and the tall stalks of these may be seen at a considerable distance.

The lecture was illustrated by a series of lantern views, and the exhibition of interesting and curious specimens.

On Monday, February 19, Professor A. R. Leeds will lecture on "Health Foods, Invalid Foods, and Infant Foods," at the same place.

### Earthquakes and Pagodas.

A notable instance of the Japanese understanding of the conditions under which they exist, says a recent traveler in Japan, occurs in the manner of giving security to pagodas. Pagodas are often of great height, yet many have existed for seven hundred years, and have withstood successfully the many vibrations of the ground, which must have inevitably achieved their overthrow had they been erections of stone or brick. When he first ascended a pagoda, he was struck with the amount of timber employed in its construction, and could not help feeling that the material wasted was even absurdly excessive. But what offended his feelings most was the presence of an enormous log of wood in the center of the structure, which ascended from its base to its apex. At the top this mass of timber was nearly two feet in diameter, and lower down a log equally large was bolted to each of the four sides of this central mass. He adds:

"I was so surprised with this waste of timber that I called the attention of my good friend Sakata to the matter; and especially denounced the use of the center block. To my astonishment, he told me that the structure must be strong to support the vast central mass. In my ignorance I replied that the central part was not supported by the sides, but upon reaching the top I found this monstrous central mass suspended, like the clapper of a bell; and when I had descended I could, by lying on the ground, see that there was an inch of space intervening between it and the earth which formed the floor of the pagoda. The pagoda is to a Buddhist temple what a spire is to a Christian church; and by its clever construction it is enabled to retain its vertical position even during the continuance of earthquake shocks, for by the swinging of this vast pendulum the center of gravity is kept within the base. I now understood the reason for that lavish use of timber which I had so rashly pronounced to be useless; and I see that there is a method in Japanese construction which is worthy of high appreciation. In the absence of any other instance, the employment of this scientific method of keeping the pagoda upright shows how carefully the Japanese have thought out the requirements to be met."

### A Train in a Sandstorm.

The Southern overland train which should have reached this city on Monday afternoon only arrived at 8:10 last night, having been delayed at Sumner by a terrific sandstorm that raged through the Mojave Desert and spread out over a portion of the surrounding country. The storm began in the early morning, and when the train reach Sumner, in Kern County, had become a regular simoom. The wind swept across the sandy wastes with such violence that the train swayed and rocked under the violence of the blasts, and seemed ready to plunge from the track. The moon had become overcast in the early part of the night, and the journey was continued in a darkness that rapidly increased until the day began in Stygian gloom. The passengers, who had been aroused from their sleep by the fierce assaults of the wind and the dashing of the sand against the windows of the train, looked anxiously for the appearance of the sun, but no gleam of light relieved the forbidding darkness of the east. Night maintained her sway, and the blackness of the heavens grew intense with the morning, until the strong head light of the locomotive almost failed to pierce it. The small portion of the desert which was exposed by the engine's lights only served to discourage the travelers. The track was lost under the billows of sand that were being tossed across the rails by the angry storm. The desert moved like a sea, and when the waves of sand struck the shivering sides of the train they scattered like spray and filled the air with a dust which made free breathing impossible.

The travelers' fears of being stopped by a sand drift were soon realized. After leaving Sumner, which is 314 miles from San Francisco, the train moved cautiously for 10 miles through the shifting waste and then stopped with a crash. The alarmed passengers hardly dared to face the driving storm to learn the cause of the unpleasant halt. The few intrepid persons who ventured into the blinding simoom found that their express train had run into a freight train which had stopped in an impassable sand drift. The slow rate at which the express was moving enabled the engineer to stop the train in time to prevent a serious accident, and the collision was only sufficient to cast the locomotive from the track. The passenger cars remained on the rails. It was then ten o'clock, so slowly had the express train proceeded through the blinding storm after leaving Sumner. The darkness of the night had only increased, and nothing was visible except within the focus of the train's lights. For five weary hours the passengers were compelled to remain on the detached train while relief was being obtained from Sumner. Assistance having arrived, the track was cleared of sand sufficiently to enable a relief engine to pull the express train back to Sumner, where the passengers found slim accommodation until the storm blew over. Toward five o'clock in the afternoon the darkness began to disappear, but the simoom maintained its vigor until nightfall. Yesterday morning the unfortunate passengers proceeded on their journey, the remainder of which was made without sensational incident, as gangs of Chinese had been at work all night and had cleared the track of the accumulated sand drift.—*San Francisco Examiner, Wednesday, January 3.*

### The Ventilation of Churches.

The *Christian Weekly* publishes a very effective, though not strictly grammatical or scientific, appeal to the sexton for a better ventilation of the churches. We quote some of the lines:

. . . . . "O Sexton!

You shet 500 men women and children
Speshily the latter, up in a tite place,
Sum has bad breths, none of em aint too sweet,
Sum is fevery, sum is scroflus, sum has bad teeth
And sum haint none, and sum aint over clean;
But evry one of em breathes in and out and out and in
Say 50 times a minnet, or 1 million and a half breths an hour:
Now how long will a cherch full of are last at that rate?
I ask you; say fifteen minnets, and then what's to be did?

. . . . . "I put it to your konshens,
Are is the same to us as mils to babies,
Or water is to fish, or pendlums to clox,
Or roots and airbs unto an Injun doctor,
Or little pills unto an omepath,
Or Boize to gurls. Are is for us to brethe.
What signifies who preaches ef I cant brethe?
Whats Pol? What Pollus to sinners who are ded?
Ded for want of breth?"

### Hibernation of the Cotton Worm.*

I have already shown in previous remarks before the association that there were various theories held by competent men, both entomologists and planters, as to the hibernation of this *Aletia* (the common cotton worm of the South), some believing that it hibernated in the chrysalis state, some that it survived in the moth state, while still others contended that it did not hibernate at all in the United States. I have always contended that the moth survives within the limits of the United States, and in this paper the fact of its hibernation, principally under the shelter of rank wire grass, is established from observations and experiments made during the past winter and spring. The moth has been taken at Archer, Fla., during every winter month until the early part of March, when it began to disappear, but not until eggs were found deposited. The first brood of worms was found of all sizes during the latter part of the same month on rattoon cotton, while chrysalides and fresh moths were obtained during the early part of April.

The fact thus established has this important practical bearing:

"Whereas, upon the theory of animal invasion from some exotic country, there was no incentive to winter or spring work looking to the destruction of the moths, there is now every incentive to such action as will destroy it either by attracting it during mild winter weather by sweets, or by burning the grasses in which it shelters. It should also be a warning to cotton growers to abandon the slovenly method of cultivation which leaves the old cotton-stalks standing either until the next crop is planted, or long after that event; for many planters have the habit of planting the seed in a furrow between the old row of stalks. The most careful recent researches all tend to confirm the belief that gossypium is the only plant upon which the worm can feed, so that, in the light of the facts presented, there is all the greater incentive to that mode of culture which will prevent the growth of rattoon cotton, since it is very questionable whether the moth would survive long enough to perpetuate itself upon newly sown cotton, except for the intervention of rattoon cotton."

*Abstract of a paper read at the Montreal meeting of the Am. Ass. Adv. Sc., by Dr. C. V. Riley.

### Treatment of Heart Disease.

There seems to be in this city, and perhaps it is equally noticeable in other communities, a growing complaint of heart affections, and the *Medical and Surgical Reporter* had an article recently on this subject, in which rest is recommended as the best remedy for some kinds of heart troubles.

By this, says the editor, we mean not positive, but comparative rest; neither do we refer to inflammatory affections of the heart, wherein, from the very gravity of the disease, confinement to bed and consequent rest become necessarily assured. We are thinking of those cases of heart exhaustion, so to speak, of individuals whose general health and tonicity is much run down, from overwork or abuse, and in whom the heart shares in this general vitiation. Possibly the organ is not in itself diseased; its organic integrity may be perfect, but its muscular walls may be flabby and weak, ready to yield, or, more properly, unable to resist any great strain. If, when in this condition, the man resorts to any violent muscular exercise, or subjects himself to the influence of violent physical emotions, this weak heart may become mechanically distended, in its efforts to perform the extra labor demanded of it. Or it may be that dilatation has already taken place to some extent; then does it become important to allow the organ time for the development of the beneficent hypertrophy that will do so much to preserve its integrity. By rest we mean to advise your patients who are threatened with or already have dilatation of the heart to do everything slowly, to perform every act of life deliberately, and to avoid, as far as possible, all occasions calculated to excite the passions or emotions. We must ever remember what a delicate machine the heart is, and how easily it can become deranged, and realizing this, must consider how much more care this organ requires when it is already diseased. We must, under such circumstances, walk slowly, think slowly, eat slowly—in a word, do everything slowly. It is not well, and we do not recommend the carrying of this advice to the verge of laziness; but what we do mean is, that while it is well for all (either sound or diseased) to avoid hurry, it is ten times more important, ay, absolutely imperative, for the man with a weak or diseased heart.

### Improvement in Submarine Mining.

Mr. William L. Saunders, civil engineer, engaged with the Ingersoll Rock Drill Company, has made a notable improvement in the plant used in removing reefs and other obstructions to commerce. He surrounds the drill commonly used in submarine mining by a tube which, for deep water working, may be made in sections telescoping with each other. Inside this tube runs an independent pipe, through which a stream of water may be discharged upon the bottom of the drill hole to remove the material broken down by the bit. The lower section of the inclosing tube carries an ejection pipe through which the debris is conveyed by the discharging water, thus keeping the hole clear and greatly facilitating the progress of the drill. When the drill is withdrawn for any purpose, the inclosing tube maintains the connection of the drill hole with the water surface, so that the hole can be quickly found again, for further drilling or for charging and tamping, without the aid of a diver. It also prevents the filling up of the hole by material washed in by currents between the times of drilling and charging, and makes it possible to insert the charge and perform all the accompanying operations from the surface of the water.

Those who understand the difficulties attending the prosecution of mining under water will appreciate the convenience and economy of working wholly from the surface, and the advantage of this simple means of preserving the integrity of the drill hole, both through the water and through any mud, sand, or gravel that may overlie the rock to be removed.

### Large Pearls.

The *Pacific*, of Mazatlan (Mexico), has the following: The largest pearl in the world has been found recently in Lower California (Mexico) by one of the fishers (or divers) belonging to the firm of Gonzalez & Ruffo, merchants at La Paz (L. C.). The pearl is of the dimension of a lemon, weighing 75 carats, and measures one inch in length and three-fourths of an inch in width. It took the fisher who opened the shell several minutes to extract the pearl. There is no doubt that the coast of Lower California is very rich. The largest pearl known before was also found on that coast, in Loreto (L. C.), in the time of the Jesuits, and adorned the crown of the Queen of Spain.

### Alum Water as a Fire Extinguisher.

It has been found by M. I. B Dumas that water saturated with alum is remarkably efficient in extinguishing fires. This property is supposed to be due to the coating it gives to objects wet with it, which prevents contact with the oxygen of the air, and thus retards combustion. It is reported that, as an experiment, French firemen are to be quite extensively supplied with instruments for throwing such solutions of alum.

### Some New Lecture Experiments.

Prof. A. W. Hofmann, of Berlin, has recently described in the *Berichte* of the German Chemical Society a number of new and instructive experiments for the lecture table. Some of these require peculiar forms of apparatus not easily obtainable in this country, and need illustrations to render them intelligible; we therefore present only such of them as can be easily performed in an ordinary laboratory.

#### INCREASE OF WEIGHT BY COMBUSTION.

This can, of course, be rendered visible to a large audience in several ways. Prof. Hofmann has been accustomed to suspend a small magnet from one end of a balance, after drawing it through fine iron filings. The magnet and its load are carefully balanced, and the iron set on fire, when the increased weight will be made evident. In his recent paper, above referred to, he says that the experiment is much more elegant when magnesium wire is used. To prevent the escape of the fine particles of oxide, he burns the wire in a two-liter flask, the magnesium spiral being fastened to a copper rod that passes through the cork.

The magnesium is ignited just above the mouth of the flask, and the cork quickly inserted. The weight of magnesium wire used must not exceed 0·5 gramme, nor be less than 0·3 gramme. It is well to put some sand in the flask, so that the pieces of glowing wire which drop off will not touch the glass. Of course, some magnesia goes off in the air while setting it on fire, and is lost; but the subsequent increase of weight is only the more striking.

The experiment can also be performed in a tightly closed space. For this purpose the two-liter flask is fitted with a tight cork bearing a gas manometer, and a glass tube with stop cock. Two thick copper wires also pass through the cork; the magnesium wire is fastened to one; the other ends in a fine platinum wire, which touches the lower end of the magnesium spiral. By passing through it a current from four to six cells of a Bunsen battery, the platinum is heated red hot and ignites the magnesium, which burns very quietly, although at first there is a heavy pressure within, owing to the high temperature produced. For this reason it is well not to use too much of the magnesium, the above limits being preserved. The increase of weight is first perceptible when, after cooling, the stop cock is opened to restore the equilibrium.

A still more instructive experiment consists in burning phosphorus in a closed quantity of air. The conditions are much more favorable with phosphorus than with magnesium, since the latter gains only two-thirds of its weight on burning, the former four-thirds, or twice as much. It is likewise performed in a two-liter flask with perforated cork. In the cork is a manometer, as before, a glass tube with a stop cock and bent at right angles, a copper wire ending in a spoon (deflagrating spoon), and a glass tube that can be closed at the upper end with a cork, while the lower (open) end is just above the spoon. Some dry oxide of iron or sand is put in the flask, a little asbestos is put on the spoon, and a piece of phosphorus weighing half a gramme laid on this, just under the open end of the glass tube. The phosphorus is ignited by dropping a short piece of hot copper wire through the tube. Instead of the spoon, a little porcelain crucible may be suspended from the lower end of the open glass tube by means of copper wire.

The wire that is heated and dropped in must, of course, be weighed with the flask; the small cork is removed for an instant from the open tube and the wire dropped in. The combustion takes place quietly and slowly, but a slight increase of pressure is noticed at first. The sides of the vessel are covered with the phosphoric anhydride. When cold, no change of weight is noticed until the stop cock is opened. By attaching a little reed to this tube, like that on a child's whistle, the entrance of the air becomes audible at some distance. A considerable increase of weight is then observed, which may amount to 0·4 or 0·5 gramme.

If a current of electricity is employed to ignite the phosphorus, the platinum wire forms an easily fusible compound with the phosphorus, and is destroyed.

#### BURNING OXYGEN IN HYDROGEN.

A simple method of exhibiting this phenomenon was first described by Prof. Hofmann in 1870, in which a current of oxygen was introduced into a vessel of hydrogen from beneath. In the present article the experiment is so modified as to bring in the oxygen at the top. A glass bulb of 500 or 600 c. c. capacity, and having a tube below as well as above, is filled by a rapid current of gas from below and then ignited at the top. A double bored cork, that fits the upper tubulus or neck, is fitted with a long and a short tube; the former is bent like the letter J at the lower end, and both are bent at right angles and in opposite directions above the cork. If a current of oxygen is passed through the former while the cork is inserted into the tubulus, through the burning hydrogen, a flame will appear at the jet on the short end of the J, where the combustion really takes place. The cork must be pressed in quickly, so as to extinguish the hydrogen flame. The excess of the latter escapes through the shorter bent tube.

#### SPECIFIC GRAVITY OF STEAM.

Water in the form of gas, or true vapor, is but nine times as heavy as hydrogen, or about two-thirds as heavy as atmospheric air. Prof. Hofmann shows that it is lighter than air, as follows: A wide glass tube has two short pieces of tubing soldered on it a few inches apart, but on opposite sides, thus ⊤. This tube is placed horizontally with one short tube projecting upward, the other downward, and then connected by means of a bent tube with a flask in which water is boiling. The large tube and the short branch which is turned upward are corked, so that the steam can only escape downward. On opening the horizontal tube, steam at once begins to escape there, and then on taking the cork from the upward branch it prefers to escape there. Were it of the same specific gravity as air it would prefer the horizontal exit, were it heavier it would go downward, but as it prefers to ascend, this proves that it is lighter than the air.

#### RELATIVE VOLUMES OCCUPIED BY WATER IN THE LIQUID AND GASEOUS STATES.

A glass bulb having a capacity of about 300 c. c. and having fine exit tubes on both ends (one of them provided with a stop cock) is suspended over a vessel of mercury. A rapid current of steam is passed through the apparatus for five or six minutes, or until every trace of air is expelled when the stop cock is closed; the bulb is lowered until the open tube dips in the mercury. The mercury begins to rise as the steam condenses, and fills the bulb, the condensed water occupying only a small part of the tube just below the stop cock.

#### MAXIMUM DENSITY OF WATER.

This can be shown by means of a glass float, if just enough platinum wire be wound about it to make it heavy enough to just float in water at 4° C., and sink in that which is either colder or warmer. As this requires careful readjustment every time it is used, Professor Hofmann prefers the following modification of the apparatus:

A glass tube 15 cm. (6 inches) long and 2 cm. (·08 inch) wide is nearly filled with distilled water, and in it is placed any object made of colored glass which will just float in water at 4° C., and sink in that at any other temperature. As soon as this is properly adjusted, he seals the upper end of the tube above the water, and in this form it is always ready. This apparatus, called a "maximum density tube," is put in a tall glass jar of ice water, and by the side of it a thermometer. Of course the colored float sinks, but on allowing a stream of water of the ordinary temperature to flow through the jar from bottom to top, a point will be reached when the float will rise to the top of the tube. Of course this will not take place until the water outside is warmer than 4°, usually about 7° or 8° C.

#### CARBON DIOXIDE CONTAINS ITS OWN VOLUME OF OXYGEN.

This is shown by burning a bit of prepared carbon in a flask of pure oxygen provided with a mercury pressure gauge. The apparatus resembles that for burning phosphorus, already described. The carbon is made by mixing lampblack and a little gum water to a paste, and forming rods of it by pressing through a glass tube. These rods are first dried at 100° C., then ignited in a current of carbon dioxide. After burning the carbon and cooling, no diminution of volume is noticed.

### Duties of Railway Corporations.

During the freight handlers' strike in this city, last summer, the movement of freight was seriously obstructed, much to the inconvenience and loss of shippers. Attorney-General Russell was appealed to for aid, and suits were brought by him for a mandamus to compel the railroads doing business in this city to receive and deliver with due diligence all freight offered for transportation. A hearing was had before Justice Haight, who sustained the objections of the railway companies' counsel and denied the Attorney-General's application.

An appeal was made, resulting in a notable decision of the general term of the Supreme Court, rendered January 17, reversing the decision of Justice Haight. The general term was composed of Justices Davis, Daniels, and Brady, and the opinion was written by Justice Brady.

That portion of the opinion relating to the duties of railway corporations as common carriers is of the highest possible interest and importance, since it settles the question whether the people of the State can invoke the power of the courts to compel the railway companies to perform their most useful public functions.

Speaking of the nature of railway corporations, the objects for which they are created, the powers conferred, and the duties imposed upon them by the laws of their creation and of the State, Justice Davis said:

"As bodies corporate, their ownership may be, and usually is, altogether private, belonging to the holders of their capital stock, and their managements may be vested in such officers and agents as the stockholders and directors under the provisions of the law may appoint. In this sense they are to be regarded as trading or private corporations, having in view the profit or advantage of the corporators. But these conditions are in no just sense in conflict with their obligations and duties to the public. The objects of their creation are from their very nature largely different from those of ordinary private and trading corporations. Railroads are in every essential quality public highways created for public use, but permitted to be owned, controlled, and managed by private persons. But for this quality the railroads of the respondent could not lawfully exist. Their construction depended upon the exercise of the right of eminent domain, which belongs to the State in its corporate capacity alone, and cannot be conferred except upon a 'public use.' The State has no power to grant the right of eminent domain to any corporation or person for other than a public use. Every attempt to go beyond that is void by the Constitution, and although the legislature may determine what is a necessary public use, it cannot by any sort of enactment divest of that character any portion of the right of eminent domain which it may confer. This characteristic of 'public use' is in no sense lost or diminished by the fact that the use of the railroad by the corporation which constructs or owns it must from its nature be exclusive. That incident grows out of the method of use, which does not admit of any enjoyment in common by the public. The general and popular use of a railroad as a highway is therefore handed over exclusively to corporate management and control, because that is for the best and manifest advantage of the public. The progress of science and skill has shown that highways may be created for public use of such form and kind that the best and most advantageous enjoyment by the public can only be secured through the ownership, management, and control of corporate bodies created for that purpose, and the people of the State are not restricted from availing themselves of the best modes for the carriage of their persons and property."

After showing how under the general railroad act every railway corporation, by accepting the trust imposed upon it, becomes an agency of the State to perform public functions, and citing a number of decisions in which it had been held that railroads could be compelled by mandamus to perform certain express and implied obligations arising from their charters, the court described the duty of carrying freight and passengers as the ultimate ratio of railway companies' existence, the great and sole public good, for the attainment and accomplishment of which all the other powers and duties are given or imposed; and declared it strangely illogical to assert that the State, through the courts, may compel the performance of every step necessary to bring a corporation into a condition of readiness to do the very thing it is created to do, but it is then powerless to compel the doing of the thing itself.

Touching the excuse of the railway companies that their freight handlers had refused to work for 17 cents an hour, demanding 20 cents, and that the unskilled men who were employed to do the work were incompetent, and so caused the neglect and refusal complained of, Justice Davis held substantially that while both parties had the legal right to differ as to the proper amount of pay for the work to be done, the railways did not have the right to hold to their decision to the injury of the public. "If the consequences of doing so were an inability to exercise their corporate franchises, to the great injury of the public, they cannot be heard to assert that such consequence must be shouldered and borne by an innocent public who neither directly nor indirectly participated in their causes."

In other words, the railway corporations cannot refuse or neglect to perform their public duties, upon any controversy with their employes over the expense of doing them. "The duties imposed must be discharged at whatever cost. They cannot be laid down or abandoned or suspended without the legally expressed consent of the State. The trusts are active, potential, and imperative, and must be executed until lawfully surrendered; otherwise a public highway of great utility is closed or obstructed without any process recognized by law. This is something no public officer charged with the same trusts and duties in regard to other public highways can do without subjecting himself to mandamus or indictment."

### Opossum Hunting in Australia.

Prof. H N. Moseley, in his "Challenger Notes," speaks of a visit he made to the domain of Sir William McArthur, at Camden Park, forty miles from Sydney, New South Wales, and gives his experience in hunting the opossum. He says:

The park is 10,000 acres in extent. Here I went out on several occasions to shoot opossums by moonlight. The opossums are out feeding on the trees at night, or are out on the ground, and rush up the trees on the approach of danger. They are very difficult to see by one not accustomed to the work, but those who habitually shoot them discover them with astonishing ease.

In order to find the animals, one places himself so as to get successive portions of the tree between his eye and the moonlight, and thus searching the tree over, at last he catches sight of a dark mass crouching on a branch, and usually sees the ears pricked up as the animal watches the danger. This is called "mooning" the opossums.

Then, with a gun in one's hand, one fully realizes for the first time the meaning of the saying, "'Possum up a gum tree." The unfortunate beast has the toughness of his skin alone to trust to. "Bang!" and down it comes with a heavy thud on the ground, falling head first, tail outstretched; or it clings with claws or tail, or both, to the branches, swaying about wounded, and requires a second shot. It must come down at last, unless, indeed, the tree be so high that it is out of shot, or it manages to nip a small branch with its prehensile tail, in which case it sometimes contrives to hang up even when dead and remain out of reach.

Nearly all the female opossums which I shot had a single young one in the pouch. The young seemed to be attached with equal frequency to the right or left teat.

I shot the animals in the hopes of obtaining young in the earlier stage, but found none such.

Among stockmen, and even some well educated people, in Australia there is a conviction that the young kangaroo grows out as a sort of bud on the teat of the mother within the pouch.

We killed about twenty opossums in a couple of hours on each occasion on which I went out.