

Scientific American

NEW-YORK, JANUARY 10, 1852.

American Philosophy--Maury's Sailing Directions.

The early efforts and original discoveries of American philosophers, have been duly acknowledged by the whole civilized world. Of old, we had our Franklin and Rittenhouse, —and for peculiar original discovery the name of Franklin stands very high. In many departments of science our country has recently earned a proud name, but in none so much, we think, as in that peculiar department at the head of which stands Lieut. Maury, U. S. N. America is a great nation, second to none, but as a nautical nation she is the greatest in the whole world, with the exception of Great Britain, and from the very nature of the case our country will, in a few years, be greater than her. The navigation of the seas, then, is at present, the most important of all sciences to our country. To this subject Lieut. Maury has devoted himself with all his energy, great learning, and keen perceptive faculties. There are some men who only can improve—act upon the suggestions of others; these never make peculiar original discoveries. This is not the case with him; he has developed a new field of observation, and this field is studded with new, brilliant, and useful discoveries to the marine interests of our great nation and the world. We have before us his third edition, enlarged and improved, of "Sailing directions," also his "Wind and Current Charts," they are monuments of which we should be far prouder than the most gorgeous marble tablet ever raised to commemorate human greatness.

The Wind and Current Charts of Lieutenant Maury include the Oceanic Currents, the Course of the Winds, and the Temperature. These Charts are constructed upon positive data of observations made by captains of vessels in all the various months of the year, and in the various parts of the oceans which cover two and four-fifths of the area of this planet. A knowledge of the winds at the various seasons of the year, has, by these charts, enabled commanders of vessels to shorten their voyages from the United States to the Equator. A knowledge of the currents of the ocean is of immense importance to navigators, as one single fact will distinctly prove. At one time vessels sailing from England to New York, during the winter season, took a long southern course, and made for Charleston, S. C., which was in almost every sense, the half way house; this was before the Gulf Stream was known to practical navigators, which, in many places, is nearly at a blood heat, and often reaches 90°. At that time Charleston was the greatest seaport in America, and vessels from England to New York, frequently ran down to the West Indies, and wintered there. American navigators were the first who discovered the way to make short voyages. The merchant vessels which sailed between London and Providence, used to make passages in two weeks' less time than the Mail Packets between Falmouth and Boston; and when Franklin was questioned, in London, upon the subject, he inquired the reason of an old New England captain, who informed him that the Providence vessels were generally commanded by New England fishermen, who knew how to avoid the Gulf Stream, while the Falmouth captains were Englishmen, who knew nothing about it. At that time Franklin made it known to navigators that, by simply dipping a thermometer in the water, they could know when they entered and cleared the Gulf Stream. This discovery changed the route across the Atlantic, and shortened the passage from 60 to 30 days. This changed the course of trade; vessels coming from England, instead of running to Charleston, went direct to their port of destination, and when attacked with severe cold, or snow storms, they stood off for a few hours until they reached the tepid waters of the Gulf Stream, in the general warmth of which the crew recovered their frosted energies, and as soon as the gale abated, were ready for another attempt to make their haven. In this way stations were shifted, and Charleston lost its pre-eminence as a seaport.

We learn from this work of Lieut. Maury how New York became the great seaport of the Union. Its rise is attributed to Quaker regularity:—in 1816, Jeremiah Thompson, Isaac Wright, and others, established a line of packets of 300 tons burden, to sail regularly every month to Liverpool. At that time, Philadelphia and Boston had about as much trade, but for the first time in our commerce, the New York Packets sailed regularly on their advertised days, and this Quaker punctuality turned the scale in favor of New York. It gave an impulse to prosperity, and it has now become the commercial emporium of the New World,—and, let us say, it will be of the whole world in 1870. "All these results are traceable to the use of the thermometer at sea." Truly, may we say, upon how small a thread does the fate of cities and nations sometimes hang.

Lieut. Maury commenced these charts with the desire that they should be exclusively the work of American navigators, and that American seamen should furnish all the materials that were peculiar to the work. Before this, American navigators were exclusively indebted to British surveys, which often guided them safely through dangerous places. Many true-hearted Americans have nobly seconded his efforts, while others, we regret to say, have looked coldly on his labors. Others are beginning, in other parts of the world, to follow Lieut. Maury's example, and thus knowledge is increased. Mr. Macfarlane, Assistant Surgeon of the Bombay Geographical Society, has made considerable progress in Wind and Current Charts, belonging to that great country—a country which has 6,000 miles of sea-coast.

We would be glad to know that every captain of a vessel in our country was acquainted with the information contained in these Charts and Sailing Directions—but this we are sure is not the case; many mariners are too conservative for their own interests. American navigators, however, are less so than those of any other nation; we therefore anticipate from their use an untold amount of benefit to the commerce of our country.

Quinine.

This is a drug that is now very extensively employed in medicine, and it is the leading one of the Chrono-Thermal system of Dr. Dickson. Its composition is C.20, H.12, O.2, N. (carbon, hydrogen, oxygen, and nitrogen). It exists in the bark of the *Cinchona cordifolia*. There are several species of cinchona which grow in South America, but which are generally divided into three varieties—the red, yellow, and pale. The red furnishes a reddish brown powder when pulverized, and has a bitter taste; the yellow Peruvian bark closely resembles the red, and the pale is much the same, only a greater quantity of quinine is found in the yellow than in the other two—the pale having the least.

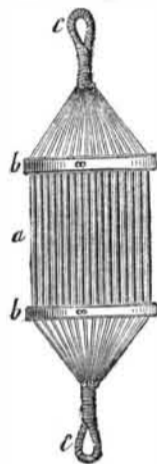
The sulphate of quinine is the substance so extensively used in our country for fever and ague. It is made by taking bruised yellow bark and boiling it in repeated portions of water acidulated with sulphuric acid. The decoction is then strained, and milk of lime added, which precipitates the quinine. The precipitate is collected, washed, and dried; it is then powdered and digested in alcohol, which takes up the quinine. The alcohol is evaporated, and the quinine is obtained in a yellow uncrystallizable substance; it is then dissolved in dilute sulphuric acid, and the sulphate of quinine crystallizes from a concentrated solution of it. Bone black, which is extensively used for purifying other substances, is also used to purify this. It is intensely bitter, and effloresces in the air. One pound of bark yields only about 107 grains of quinine, hence it is sold at a very high price. The crystals are very beautiful.

This drug is subject to great adulteration, it being often mixed with starch, sugar, cinchona, &c. In the Chrono-Thermal system of treating fevers, bark, or quinine, or opium, are administered in the intervals of relapse from fever. The Peruvian bark is the great pro- longer of healthy relapse from fever. The general prescription, in this method of treatment is to give an emetic first, when attacked with chills and pain, and after that give bark in small doses, and perhaps a mild aperient.

Peruvian bark is taken easily with wine, and to produce rest about 12 drops of laudanum should be given along with half a tea-spoonful of the powdered bark, in half a glass of wine, for a grown-up person, and the half of that for a person between 10 and 20 years of age.

India-Rubber Power Accumulators.

Last week, on page 128, Scientific American, we mentioned the circumstance of an English gentleman having proposed to apply India-rubber tubes as "Power Accumulators." His name is R. E. Hodges, of London, and he has secured a patent for the same. He recently addressed a letter to Mr. Robertson, editor of the Mechanics' Magazine, on the subject which was accompanied with some sketches, one of which we have selected to show our readers what the invention is.



This represents 151 vulcanized india-rubber tubes, each one foot long and all of them contained within an area the diameter of which is 12 inches. Its power is stated to be equal to 4 tons, 7 cwt., 17 lbs., and its own weight only 65 lbs. *a* are the tubes; *b b* are the ring bands; *c c* are the loops or eyes. These tubes will stretch to about seven times their length, and being quite elastic return again to their original length—one foot. It is the self-inherent continual effort to return to their original length, which has induced the inventor to call them "new power accumulators," for according to the power applied to extend the accumulator, so will it return or exert a like force in returning to its original length. They have the advantage of being very useful on board of ships, as they float on the water. They can be applied to relieve the sudden jerking on ship's cables, standing rigging, and tow-lines. An accumulator can be inserted as a spring in any part of the cables, or tow-lines; or an accumulator can be secured to the deck by a hook passing through one eye, *c*, and the end of the cable, &c., through the other eye. These accumulators would make excellent railroad buffers. By keeping an accumulator in a state of tension, it then has an accumulated power, and when convenient, it is attached to the body to be moved when the rope which holds it is eased off, and the body to which it is attached is then quickly removed.

The Aztec Children.

There have been on exhibition for some time, at the Society Library Room, this city, what are termed the Aztec Children. It has been stated that they are of a race of pigmies—rather the remnant of a race—away down in Central America. They have created no small sensation in this and other cities, and we do not wonder at it; they are great natural curiosities. We have no faith, however, in their being a distinct race from the South American Indians, nor have we faith in the romantic story published, about their capture and the stealing of them from the place where, it is said, they were held as objects of wonder. We believe they are Indian dwarfs. The profile of the boy is exactly like that of the figures found on the ruins of those cities in Central America, described in "Stephen's Travels:" this proves conclusively that the present race of Peruvians, &c., are the same as those which built those ancient cities. The Aztec Children are lively, have beautiful black curly hair, and very large black eyes. They are very slender, and the girl appears to be the best formed; she looks like some Indian children, with the exception of the large eyes

and curly hair. The boy would afford strong argument for a believer in the Montboddoo theory: he has some distinct trait of the Simian tribe. The girl appears to be about 6 years of age, the boy 12; the height of the boy is 34 inches, the girl 29½. The upper lip of the boy projects to a great distance, and he appears to be incapable of ejecting his spittle.

They are interesting specimens of undeveloped humanity, and of a peculiar race of aborigines, still living, but descendants of the oldest tribes in America. They are the greatest objects of natural curiosity that we have ever seen; they are fixed curious facts in natural history, and Prof. Agassiz could make a most splendid article out of them, in proof of distinct species of the human race.

Repeal of a Patent in England.

A case was recently tried before Lord Campbell and a special jury, on a writ of *scire facias*. This was an application to repeal a patent which has been illegally granted, and the action is placed the Queen versus the Defendant. The crown, in this case, must come before the Jury. The case we are about to speak of was the application for the repeal of a patent granted in 1843, to one Steiner, for the manufacture of Garancire (a dye from spent madder, for an account of the process of making it—see page 107, Vol. 6, Sci. Am.) The defendant, Steiner, contended that his patent was good, as he was the first who introduced the process into England from France, and it was a most valuable discovery. It was alleged, on the part of the witnesses to repeal the patent, that the process was known and practiced among chemists and color makers, in calico print-works, for years before 1843, when the patent was secured; also that the process of manufacture had been published before 1843, in a French work called "Le Manuel du Fabricant d'Indiennes," and this work had been known and purchased in England, before the patent was secured.

A great many witnesses were examined on both sides, and Lord Campbell charged the Jury, that if the discovery was new, or first introduced into England by Steiner, they must decide in his favor; if not, then against him and for the Crown. The Jury returned a verdict against the patentee, and the patent was repealed.

Dr. Colton and the Fire Annihilator.

The spunky little Doctor came out in a long Card in the Tribune of last Wednesday, against the report, and the persons composing the Committee, mentioned by us two weeks ago; also against the Journal of Commerce. Giant Colton intends to annihilate all the scribblers and papers—the Journal of Commerce especially—for speaking out upon the Annihilator. The Doctor is great upon gas for extinguishing flame; but, then, it is very absurd for him to try it upon facts—they are sturdy things and cannot be annihilated.

The Gas Contract Vetoed.

The old New York Common Council, with a recklessness and flagrancy not to be surpassed by any of the old English Rotten Boroughs, recently passed a resolution annulling the contract of the present Gas Co., and entering into a new one for 17 years after May, 1852. The resolution was passed in violation of Sec. 23, of the Amended Charter; Mayor Kingsland has vetoed it, and his act will meet the approbation of our citizens. It is a great pity that he has had to do the same thing twice, but this shows how recklessly the Board of Aldermen acted.

Minot's Ledge Lighthouse.

A model has been made for a cast-iron Tubular Lighthouse, for the purpose of a gas light, to be supplied from the shore, for Minot's Ledge.

I would suggest, as an improvement, a structure of lattice work, of iron wire. It would, probably, be less expensive, and would present less surface for the wind and waves to act upon. A light could be supported, which, by lettered fixtures, would proclaim to the mariner the name of the Light. The former structure would, undoubtedly, have been now standing, had there not been a house in the top thereof, upon which the wind acted, with lever power, upon its foundation and lower structure.



Patent Claims.

The List of Patent Claims had not arrived from the Patent Office when we went to press. We greatly regret this, as we like to have the claims every week,—hundreds of our readers anxiously await them.

An Interesting Patent Case.—An Example to Judge Kane.

Although we honestly and sincerely devote our energies to the advocacy of inventors rights, we also, because it is just, advocate the rights of the public at the same time. It is well known that we have given our reasons why we believed the late decision of Judge Kane, in the Telegraph Case, was wrong. The question was between two of our patentees, and the decision rendered by him, without a trial at common law ever having taken place between the parties, was one of the most despotic acts that we ever heard of, and would not be rendered by any judge under the monarchical government of England. We learn by the London Patent Journal, of Dec. 13, that a case came up before Sir J. Parker, the parties being Laird vs. Crippin—the plaintiff applying for an injunction to restrain Crippin from using his patent rudder, patented in 1843. The rudder was used on a ferry steamboat, named the Nymph. The following is Judge Parker's decision:—

"His honor said that he had no doubt of the plaintiff's title for the purpose of this motion. The only question was as to the infringement of plaintiff's patent by the defendants; and upon this he should express no opinion, but should leave it for a jury to decide. What, then, ought to be done in the meantime? If, on the one hand, the defendants were to be restrained from using the vessel in question until after a trial had been had at law, the defendants would have suffered irreparable injury by the suspension of the profitable employment of their vessel, if the verdict of the jury should be in their favor. If, on the other hand, the plaintiff succeeded, the infringement of his rights would admit of pecuniary recompense; for his only object was to obtain compensation for the use of his patent. In the present case, defendants were not making a systematic use of plaintiff's rights; for they were charged with infringing the patent in one only out of the three vessels they owned. The motion must stand over till the result of an action at law be known, defendants undertaking to keep an account of the receipts and expenditure of the vessel, and submit to my order the Court might make as to compensation (if any) to be made to plaintiff."

In this case the defendants were not patentees, and yet how careful Judge Parker was not to prejudice and injure their rights. In the case of Judge Kane, the defendant was an American patentee, and had a patent for his invention.

The Bain Telegraph.

It seems that the statement made last week, about the Bain Line having been sold to the Morse Co., is true, but the line which was sold was that between Washington and New York, and against which Judge Kane so summarily granted an injunction. The sale was made after the injunction was granted; an appeal had been taken from the Judge's decision. Both sides, it seems, felt uneasy. The Merchants' (Bain's Telegraph) Line, has published a card, stating that neither the suit spoken of, nor the compromise which grew out of it, have anything to do with it. "We are satisfied, says the card, "of our moral and legal right to the business we are prosecuting."

They certainly have a moral right to it, for the invention, in essence and principle, is entirely different, but then Judge Kane would say they had no legal right to it. In our way of judging, that which is morally right should never be held legally wrong.

The end of the case between the Morse and

Bain Lines, between this city and Washington, has ended like many other patent cases, (not a few of them in connection with the Woodworth Patent), of the stronger party absorbing by one way or another, the weaker. We dislike to see those who are right, although weaker, selling the morality of the question,—for such is the light in which we view it. We go for defending the rights of every patentee, be he who he may. Out of this question a free public telegraph may yet be brought forward. In all likelihood the owners of the Morse patent will make out a fine bill of expenses, and get a renewal of the patent, to make still richer five or six fat companies.

Extinguishing Fire—Air-Slacked Lime.

MESSRS. EDITORS—In your paper of Dec. 27, there is a communication in relation to the extinction of a fire by air-slacked lime, and the writer has never been able to account for that phenomenon. We have not the article before us, at present, but will endeavour to explain the operation in plain chemical terms.

The formula of the carbonate of lime is CaO , Co. 2,—of lime CaO . The carbonate of lime being burned dispenses with its carbonic acid, Co. 2,—retains its oxygen, and is then, as above stated CaO , that is, one atom of calcium and one of oxygen. This, exposed to the air, imbibes moisture and carbonic acid, and finally becomes a neutral carbonate of lime, combined with a portion of water, CaO , Co. 2 H. O. When this air-slacked lime was thrown on the fire, the carbonic acid and water were expelled, by which the flames were extinguished.

QUARTERMAN & SON.

New York, 1852.

Philadelphia Museum.

This Museum having been burned down, it appears that Mr. Barnum has suffered no loss by it, as he states, by a card, that he sold out his interest in it last summer. This is a pity, for if he had been the proprietor it might have been saved by his extensive share of annihilators. Dr. Colton could have applied them to save every wax-figure, from Daddy Lambert to the Witch of Endor.

Width of the Ohio River.

"Taking advantage," says the Cincinnati Commercial, "of the present frozen state of the river, our City Civil Engineer, Mr. Gilbert, had it carefully measured in several places, yesterday, for future reference; and we obtained from Mr. S. W. Irvin, the principal assistant, who made the measurement the following particulars:—At Main street the river was found to be 1200 feet wide; at John street 1370 feet, and at the intersection of Fifth and Front streets, 1100 feet, making an average of 1223 1-3 feet. The river is at this time 11 42-100 feet above extreme low water, and the above measurements are taken at the present water lines."

Influence of America and Webster's Dictionary in India.

It is well known that America is exercising a most important influence in the East Indies by her missionaries, and it is interesting to us to notice how the labors of men in every department of literature and science are made, in the providence of God to subserve the cause of our missions. As an example, we learn by the Journal of Missions, that the labors of Noah Webster, though designed primarily for those speaking the English language, are likely to prove of signal service in respect to unnumbered millions using widely different tongues. Mr. Spaulding, one of the oldest missionaries of the Board in Ceylon, after using his "Dictionary, unabridged," for about a year, pronounces it, "in every respect more complete than any one work, and even all other works of the kind, in the English language." The manner of using it, which has led to the above conclusion, he describes as follows:—From the day of its arrival, four, six, or ten pages each day, for four days each week, passed under my eye, and every word which was thought would be useful to missionaries, to civilians, or to Tamil youth studying the English language, with its various shades of meaning was defined by Tamil synonyms, or idiomatic phrases. In this way he has prepared the second edition of the English and Tamil Lexicon, a volume of nine hundred octavo pages.

Thus the labors of Dr. Webster are made available for a race amounting to twelve millions of souls. As all the missions of the principal Boards of the United States have been furnished with copies of the Dictionary, it may be presumed that this is only the commencement of the beneficial influence of this great work, which may be used as the means of preparing other dictionaries, for the instruction of other millions, in almost every part of the heathen world.

In connection with the literature of America, works of science frequently find their way from our country far up in the interior. Two years ago we received a letter from the Capital of Siam, from an American mechanic, who received the Scientific American in bundles about six times per year. Civilization, which at one time came from the east, is now going there from the west.

Medicinal Cigars.

A London paper says:—The employment of various organic and inorganic substances of a volatilizable nature in the cigar form, has frequently been resorted to. In this way stramonium, cicuta, Raspail's camphor, and corrosive sublimate, have been used by means of tobacco deprived of its nicotine. The great efficacy of this last substance in some forms of ulcerated throat, in Dr. Landerer's hands, has rendered him very desirous of extending this form of medication. He prepared cigars, therefore by moistening tobacco freed from nicotine with tincture of iodine, a solution of mercury in sulphuric ether, or a solution of iodine of potassium. He found these cigars of great utility in some ulcerations of the throat. So, too, by moistening tobacco with an aetherial solution of hyoscyamin, he has relieved most obstinate spasmodic cough, without including any narcotism. Among other substances tried, he found a solution of creosote in spirit of wine and ether a very useful form in scorbutic ulceration of the gums. Cigars formed of this substance are also very useful in the tooth-ache. Arsenic cigars, formed by steeping the tobacco in Fowler's solution, have also been employed; and Dr. Landerer believes that this form of medication might be extended to a great variety of substances. These methods may be safe in the hands of scientific men, but should never be attempted by inexperienced individuals.—[Exchange.]

[This is our opinion exactly; it would be dangerous for inexperienced persons to use them, and experienced persons should not do it either, except upon the principle of desperate diseases requiring desperate remedies, when such prescriptions may be justified in principle and practice.]

Melting of Metals.

The enclosed memorandum, cut from an exchange, has elicited some discussion, and the query is, from what did Fahrenheit base zero or 0 in his scale—was it the point at which alcohol freezes or not? An article in your paper explaining this would be interesting.

J. L. C.

The following are temperatures on Fahrenheit's scale at which some of the most remarkable effects of heat are produced:—

- 2,786 ° Cast iron melts.
- 2,200 ° Gold melts.
- 1,986 ° Copper melts.
- 1,873 ° Silver melts.
- 1,560 ° Brass melts;
- 1,141 ° Heat of a common fire.
- 980 ° Red heat.
- 218 ° Sulphur melts.
- 212 ° Water boils.
- 184 ° Alcohol boils.
- 98 ° Blood heat.
- 36 ° Olive oil Freezes.
- 31 ° Water freezes.
- 20 ° Wine freezes.
- 14 ° Oil of turpentine freezes.
- 1 ° Oil of vitriol freezes.
- 39 ° Mercury freezes.
- 45 ° Nitric acid freezes.
- 60 ° Greatest cold ever observed in the Arctic regions.
- 135 ° Greatest cold yet produced by artificial means.

A mixture of 7 parts of snow and 4 of diluted nitric acid gives a cold of 30° below zero.

Three parts of snow and two of diluted acid reduce the temperature to 46° below zero.

[In Fahrenheit's scale the interval between the freezing and boiling points of water is divided into 180 equal parts, or degrees, which was chosen by Fahrenheit (or probably Roemer), from some theoretical considerations respecting the expansion of mercury, it being computed that the thermometer when plunged into melting snow contained 11,156 parts of mercury, which, at the temperature of boiling water, were expanded into 11,336 parts, being placed at 32° below the freezing heat of water. It has been frequently stated that this point was selected as indicating the temperature of a freezing mixture of snow and salt; but it appears from Boerhaave that it was adopted from a still more precarious supposition, namely, the greatest colds observed in Iceland, which was probably assumed to be the lowest natural temperature. The freezing point is thus marked 32°, and consequently the boiling point at 32+180=212. It must be admitted that this scale, though it possesses some advantages in the lowness of the zero point and the smallness of the divisions, is not well adapted to philosophical purposes.]

Consumption of Tobacco and Tea in Britain.

During the year 1851, it appears that there has been a large increase in tobacco and tea, in consequence of the Great Exhibition and the influx of foreigners. In 1851, in the nine months ending Oct. 10th, the total quantity of unmanufactured tobacco entered for home consumption was 20,836,522 lbs., and during the corresponding period of the year, it amounted to 20,909,582 lbs., being an increase of 73,060 lbs. The quantity of manufactured tobacco and snuff during the same periods were respectively 154,066 lbs., and 166,311 lbs., being an increase of 12,245 lbs. in the nine months. In the consumption of tea there was also great increase. In the nine months of last year the consumption was 39,403,195 lbs., and in this year, 41,200,725 lbs., being an increase of 1,797,550 lbs., in the nine months. What would Sir Walter Raleigh and King James I., with his anti-tobacco blasts; what would Jonas Hanway and Samuel Johnson say to these statistics? It is satisfactory to add, that the consumption of spirits during the same period was less than in the nine months of the previous year by 72,849 gallons.

For One Dollar.

Sets of Volume 5, "Scientific American," (minus four numbers) will be furnished from this office for ONE DOLLAR.

For particulars concerning other back volumes and numbers, see notice on advertising page.

Bolt Heading Machine Patent.

The claim on page 126, respecting which the name was not received, we have since learned, should have contained, as patentee, the name of Nathan Starks, of Albany, N. Y.

January Thaws.

The news of freshets are coming in from all quarters; at Albany on the Hudson, and various places on the Connecticut river, great freshets had been experienced.

The Kossuth Hat, with the little black feather, was all the rage on New Year's Day. There was a perfect sea of plumes in the street. Well, out of fashion with the hard shells as soon as possible.

Our Minister at Paris, Mr. Rives, has not yet recognised the Dictator Government of Ham Napoleon. Mr. Rives' conduct meets with the commendation of all our people.

It is said that a terrible and singular disease has just broken out in Gallacia, Poland, which defies all the efforts of the medical faculty to explain or cure. It is an epidemic, and has received the name of the "sleeping fever."

A very rich mine of bismuth has been discovered in the French colony of Algeria.

Williamsburgh, N. Y.,—just across the river, and next-door neighbor to Brooklyn—became a city on last Monday. A great noise was made by the firing of cannon.

The New York Herald and the New York Art Union have got into a law tussle about a libel, said to be perpetrated by the former.