

**THE SIAMESE TWINS.**

The autopsy on the bodies of the Siamese twins has, at last, been consented to by the relatives, and the remains have been transported to Philadelphia. A commission, consisting of Drs. Pancoast, Allen, and Andrews, recently visited the place of residence of the twins, and, after considerable persuasion, succeeded in overcoming the scruples of the two families. The bodies, which had been deposited in cases packed with charcoal, were removed from their temporary sepulcher and carefully examined. Slight change had taken place in their appearance; but as the rapid setting-in of decomposition was feared, the physicians decided to postpone operations until the remains could be taken to Philadelphia, where every facility for a thorough investigation would be at hand. A number of photographic views were accordingly taken, after which a partial embalmment was completed, when the bodies were packed into an airtight tin chest and forwarded to their destination. At the time of writing the dissection has not been completed, and public curiosity, now fully aroused regarding the matter, will look with much interest for the forthcoming report. The main question to be decided will be settled as soon as the knife severs the connecting ligature. Opinion now inclines principally to the belief that the strange band contains a large artery and many veins, which made the circulation in both bodies identical. This was the view held by many eminent British surgeons, Sir Benjamin Brodie among the number, and appears to be substantiated by the fact of a compression of the ligature causing the fainting of the weaker brother. On the other side is no less an authority than Nélaton, the great French surgeon, who always maintained that separation could be safely effected, while the family physicians of the twins consider that the circulation in either body was entirely independent from that in the other. The post mortem, in deciding this interesting point, will also necessarily determine whether Eng died from the shock due to the realization of his brother's death, or from a cessation of the flow of his blood.

The illustration which we give herewith conveys an excellent idea of the appearance of these remarkable people. They were of decidedly ugly faces—our picture rather flatters them—and were far from amiable in temperament. Eng was the smaller, and generally stood in the peculiar position represented, bent somewhat backward. The details of their early history are somewhat meager. It is said they belonged to a low order of peasantry, and were born in Siam in 1811. Captain Abel Coffin, of Newburyport, Mass., found them in the city of Meklong, and bought them from their mother. In 1850 Barnum brought them before the world, since which time they have been exhibited throughout this country and Europe. Their subsequent history we have already sketched in a previous notice of their death.

**How to Keep a Situation.**

An observing correspondent in the *Western Rural* gives the following hints on the above subject:

Be ready to throw in an odd half hour or an hour's time when it will be an accommodation, and don't seem to make a merit of it. Do it heartily. Though not a word be said, your employer will make a note of it. Make yourself indispensable to him, and he will lose many of the opposite kind before he will part with you.

Those young men who watch the clock to see the very second their working hours up—who leave, no matter what state the work may be in, at precisely the instant—who calculate the extra amount they can slight their work, and yet not get reproved—who are lavish of their employer's goods—will always be the first to receive notice, when times are dull, that their services are no longer required.

**The Telephon.**

This instrument, popularly known as the "steam jackass," is the invention of a farmer in Illinois. This gentleman was the owner of a mule possessed of unusual ability for producing sweet sounds, it having been ascertained that his voice could be heard over a circle of eight miles diameter. The mule was killed, and the inventor severed the head from the body. The head was then carefully preserved from decay, and the inner organs were covered with a substance that was impervious to steam. We are indebted to the *Brooklyn Eagle* for a description of the first trial of the invention.

"A short piece of rubber hose was attached to the windpipe and connected with a steam boiler. It was a moment of agony to the inventor, as he placed the head in the hands of an assistant and slowly pulled the valve open, a moment of thrilling interest; as the steam was turned on, it passed into the windpipe, expelling the air and producing a sigh followed by a groan, a snort, a chuckle, then a violent coughing and sneezing. As a full head of steam was turned on, the most fearful noise, the most frightful guffaw, the most vociferous bray, that ever assailed mortal ears was produced. The lips were contracted, disclosing a terrible array

of teeth; the features developed a satanic grin, and the jaws rose and fell as the steam crowded the passages; and the ears participated in the general movement, giving to the head an excited and animated appearance. The man who was holding the head gazed upon it a moment with dilated eyes, colorless cheeks, knocking knees and protruding tongue; then, suddenly losing all interest in the performance, he emigrated. As for the inventor, his success ex-

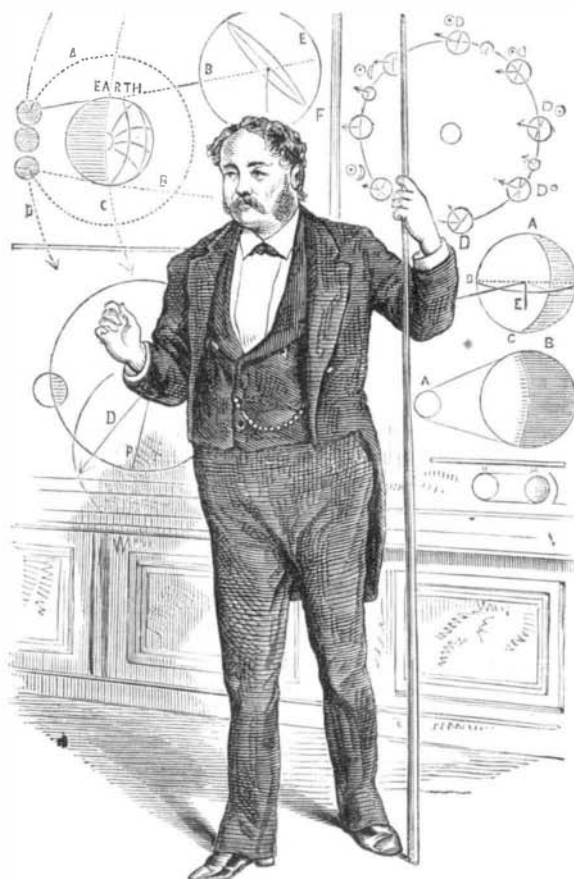


**THE SIAMESE TWINS.**

ceeded his most sanguine expectations. For an instant he contemplated the head, his countenance working with every manifestation of intense delight; then he, too, started, probably to learn the greatest distance to which that voice would penetrate."

**PROFESSOR R. A. PROCTOR.**

There are few instances on record of a man attaining so distinguished and, withal, so well earned a reputation, in so



short a period of time, as that of the eminent astronomer who has recently delighted the public of this city with his admirable lectures on the wonders of the heavens. Professor Proctor is now in the thirty-seventh year of his age; and although he gained honors in his collegiate course, and at-

tracted some attention by literary efforts as early as 1863, it was not until 1865 that he definitely adopted the profession in which he is now universally admitted to be one of the ablest masters. To his celebrated controversy with the English Astronomer Royal, regarding the proper method of observing the coming transit of Venus, ending in the virtual defeat of the latter, and the subsequent corroboration of Professor Proctor's views by the first American, Russian, and German astronomers, we have already found occasion to allude; and with his published works, the clearest popular expositions of modern knowledge regarding the constitution of the celestial bodies extant, we presume our readers to be already familiar. His books are a remarkable combination of lucid and vigorous expression with scientific accuracy; and while never superficial, their subjects are treated, even when most abstract and uninviting, in a semi-imaginative manner, which lends to them a charming freshness and interest.

Professor Proctor's most recent work is a collection of essays on topics more of a general than of a purely scientific interest. Lack of space at present at our disposal prevents our here alluding to the "Border Land of Science" in such detail as we could wish, and hence we reserve its review for a more fitting opportunity. We may remark, however, that the author undertakes, in its pages, voyages to the sun and to Saturn, tells about life in Mars, and even ventures into the shadowy realms of ghosts, only, however, to demolish those vagaries of the brain, by the bright light of scientific investigation and logical deductions of cause and effect.

Professor Proctor is of genial and pleasant appearance, and is a fluent and ready speaker. His lectures are excellent even as literary efforts; and although in some instances technically above the ordinary scientific discourse as usually adapted to the comprehension of a general audience, they nevertheless are so agreeably delivered and so brilliantly illustrated, that the interest of his hearers is kept constantly alive from beginning to close. An artist contributes a sketch as he appears upon the platform.

**To Destroy Insects.**

Hot alum water is a recent suggestion as an insecticide. It will destroy red and black ants, cockroaches, spiders, chintz bugs, and all the crawling pests which infest our houses. Take two pounds of alum and dissolve it in three or four quarts of boiling water; let it stand on the fire until the alum disappears; then apply it with a brush, while nearly boiling hot, to every joint and crevice in your closets, bedsteads, pantry shelves, and the like. Brush the crevices in the floor of the skirting or mop boards, if you suspect that they harbor vermin. If, in whitewashing a ceiling, plenty of alum is added to the lime, it will also serve to keep insects at a distance. Cockroaches will flee the paint which has been washed in cool alum water. Sugar barrels and boxes can be freed from ants by drawing a wide chalk mark just round the edge of the top of them. The mark must be unbroken or they will creep over it, but a continuous chalk line half an inch in width will set their depredations at naught. Powdered alum or borax will keep the chintz bug at a respectable distance, and travelers should always carry a package of it in their hand bags, to scatter over and under their pillows, in places where they have reason to suspect the presence of such bedfellows.

**The Taylor Steam and Hydraulic Cotton Press.**

About a year ago, we illustrated an improved form of steam and hydrostatic cotton press, the invention of Mr. John F. Taylor, of the Phoenix Iron Works, Charleston, S. C., and in the accompanying description, page 15, volume XXVIII, the reader will find a full explanation of its working. The power is transmitted to the oil, water, or other liquid in the press from the pistons of two steam cylinders, which act upon the plate alternately, one imparting the initial and the other the finishing pressure. The latter is operated by live steam from the boiler, and the former is actuated by the exhaust. The steam is thus used twice over, on the compound principle, thus effecting no inconsiderable saving of fuel.

One of these machines has recently been erected in the warehouse of Mr. E. C. Pentz, foot of West 11th street, in this city, where it is now in operation re-pressing cotton for shipment. The motion of the apparatus is uniform and entirely free from jar, and its capabilities are stated as extending to the pressing of 100 bales of cotton per hour. The inventor submits testimonials to the effect that 700 bales have been pressed in a working day of ten hours. The power of the machine is 2,006,400 lbs. under 80 lbs. of steam. A continuous and steady pressure, we understand the inventor to assert, is maintained so long as steam is kept up in the boiler. The construction is strong and simple, and there appears to be a notable absence of pumps, valves, and other portions liable to be quickly worn out.

THE sand blast is said to work well in cleaning the walls of iron and stone buildings.

## Geographical Progress in 1873.

Judge Daly, in an able address before the American Geographical Society in this city, of which he is the President, recently reviewed the progress of explorations and other efforts toward increasing our geographical knowledge, made during the year just ended. The lecture was an exhaustive review of the whole subject and a summing up of the results obtained. The utility of geographical societies as organized means of promoting geographical discovery, as well as the necessity for their existence, is proved from the fact that there is yet one seventeenth part of the globe of which we know nothing except by conjecture.

The region which surrounds the south pole, the antarctic, covers an area of 7,000,000 of square miles. The arctic measures nearly 3,000,000. The unexplored portion of Africa may be put down at least as 1,000,000. The unknown part of Australia is certainly more than two thirds of that amount; and in this connection, attention may be drawn to the great islands of the East Indian Archipelago, stretching from the northeast corner of Asia to New Zealand, occupying the most favored part of the earth, and which have in extent the magnitude of a continent. One of this great group, Borneo, is considered the second largest island on the globe. A strip along the coast of about 100 miles deep represents what we know of it; the interior and larger portion remains unknown. So also of Papua or New Guinea, which is as large and may even be larger than Borneo. Sumatra is 1,000 miles in length, and Celebes and Luzon are inferior only to Sumatra; and there are in addition numerous islands of considerable size, some as large as Ceylon, and thousands of minute islands, many abounding in spices and mineral ores.

Regarding recent

## ARCHÆOLOGICAL DISCOVERIES.

the speaker stated that late excavations made in Rome have revealed that the ancient city, before the Republic, in the time of the kings, was large and strongly fortified, and must have contained an immense population. This is contrary to the impressions of modern historical critics. The foundations of the ancient city have been laid open, which consist of enormous works, many of which were great tanks and wells. The foundations are constructed of oblong blocks of tufa, put together without mortar, the style of building being the same as found in the ruins of Etrurian cities.

Dr. H. Schlieman terminated his excavations upon the supposed site of Troy last summer. He thinks that he has discovered Skaean gate, Priam's palace, and the great wall described by Homer. He writes of his discovery of a great wooden box containing jewels, precious stones, ornaments, and arms, such as battle axes, shields, and an immense goblet of pure gold, with two handles and two mouths, which box, he says, has disappeared. In the island of Delos a whole temple has been laid bare and the ruins of a whole city discovered, and additional excavations, attended with important discoveries, have been made in Pompeii.

A stone has been found on a farm in Parahyba in Brazil containing an inscription, which, upon examination, was found to be in Phœnician characters, which would prove that the Phœnicians had visited America at a very early period.

After fully referring to the various surveying expeditions in Central and South America,

## ASIAN EXPLORATIONS

were noted, and it was stated that the Russian campaign which culminated in the capture of Khiva has produced valuable geographical results. The most important information of changes is the addition of the right bank of the Oxus to the Russian dominions, embracing the country north of that river, east of the Sea of Aral. Forty thousand slaves have been liberated in the conquered territory, and slavery has been abolished for ever.

Mr. Jacob Halevy has explored the southern part of the Arabian Peninsula, through the interior of Yemen, a country little known and where traveling is perilous. His journey extended from Hodegeda, on the Red Sea, in a northerly direction, through the Wadi Flabouna, 18° 55' north latitude.

In this part of the country he found many Sabœan inscriptions, and saw the source of the River Kharid, which runs toward the interior of Arabia and disappears, after fertilizing the numerous oases of the Djaouf. He believes this to be the river which is alluded to in a passage of Strabo as having been crossed by a Roman army, Aelius Gallus, before entering the country of the Sabœans. Innumerable ruins in a crumbling condition, he says, cover the soil on the banks of the Kharid and its affluent, the Medheb.

## THE ANCIENT JERUSALEM.

Concerning the explorations in Jerusalem, the speaker said:

The details of this work, which occupied nearly three years, are too numerous to enter upon; shafts were sunk below the present city in various places to a considerable depth, and discoveries were made of extensive subterranean passages and galleries, winding aqueducts and canals which were cut in the solid rock, chambers, drains, sewers, wells, and tanks. A stream of running water was found, showing that fountains exist far below the surface, and are still running, a circumstance of interest, as there is now a dearth of water in Jerusalem. Inscriptions in the Phœnician characters in red paint were found upon walls, and many objects of interest were gathered, such as lamps, pottery, weights, seals, gems, and sepulchral chests, some of them very beautiful, containing human remains. An attempt was made to determine the exact position of parts of the Temple and the

site of Solomon's palace; but while the investigations have had the effect of disturbing many of the previous theories as to the precise locality of places, they have not been sufficiently certain to remove doubts, or dispense with further inquiry.

## THE PENINSULA OF SINAI

has been surveyed by Professor Palmer and Dr. Drake, and they conclude the locality to be the scene of the events recorded in the history of the Exodus, and its examination has certainly furnished a remarkable corroboration of the truthfulness and accuracy of the Biblical history. The country is extremely wild and rugged, and has one of the most complicated systems of drainage in the world. Formerly it was well wooded, its mountain sides terraced with gardens; its rushing waters regulated and utilized; and this fertility lasted until comparatively modern times. Jebel Musa is considered to be undoubtedly the Mount whence the Law was delivered.

## PALESTINE.

The country lying east of the Jordan and of the Dead Sea has been undertaken by the American Palestine Exploration Society. It embraces the part of Palestine which is the least known, and is in territorial extent three times as great as the country surveyed by the English. It abounds in ruins, inscriptions and objects of great interest, and its exploration will undoubtedly throw a great deal of light, not only upon Biblical history but upon the former history of the whole country lying midway between Ancient Assyria and Egypt.

Lieutenant Steever has spent about five months in explorations east of the Jordan. He has surveyed about 600 square miles, and has prepared a very valuable map. The explorations were in Edom and Moab. Various sites have been satisfactorily identified, and the positions of Mounts Nebo and Pisgah determined. The levels of many important spots were taken, a number of ruins in Moab examined, and interesting inscriptions copied.

## AFRICAN EXPLORATIONS

are represented to be less fruitful in positive results than those of former years.

MM. Compeigne and Marche have undertaken to penetrate Equatorial Africa in the vicinity of the Gaboon. Their object was to trace the course of the Ogoone and the lakes to which it is supposed to lead, one of which is reported to be very large. The last accounts of Dr. Gandy, the commander of the West African Livingstone Expedition, are that he left San Salvador, the farthest point in the Portuguese dominions, for the country east, which is nearly a blank upon our maps. A German expedition, organized by Dr. Bastian and the Berlin Geographical Society, left last spring for the exploration of Loango.

With a glance at the reports of exploring expeditions in Australasia, Judge Daly concluded his survey with a reference to the telegraphic event of the year, which he thinks has been the completion of a line of telegraph across the entire length of Australia, from south to north, from Adelaide in the south to Port Darwin in the north, a distance of 2,012 miles.

The completion of the telegraph across Australia gives a line, from Adelaide to Gibraltar, of 12,462 miles, of which 9,146 miles are submarine. The practical result is that Australia now receives news three weeks earlier than the latest brought by the mail steamers.

## Correspondence.

## Air Poison and its Remedy.

To the Editor of the Scientific American:

The effects of fresh air upon the human system are well known to be renewed strength, increased vital force, and heightened complexion; while the fetid atmosphere of close rooms produces pallor, weakness, and diminution of the mental capacity. It is remarkable that the same body, air, should have such diametrically opposite effects under but slightly altered conditions.

After the discovery, in the last century, of the composition of atmospheric air—which is about one fifth oxygen and four fifths nitrogen—it was ignorantly believed to be the absorption of oxygen by breathing, and consequent relative increase of nitrogen, that made the air of crowded rooms noxious; but analysis abolished this idea, and proved that the relative proportions of the two gases are always the same. The oxidation of the carbon supplied by our food causes the gas exhaled from the human frame to be largely composed of carbonic acid; but the chief impurities of the air, which cause decay and putrefaction of organic matter, are the living vibrios, which multiply so rapidly that, were it not for the eternal compensation of natural forces, they would soon suffocate all other life off the earth. Their fell enemy is ozone, which is oxygen in a negatively electric state, and exists in our atmosphere in a proportion varying from one ten-thousandth to one one-hundred-thousandth. Ozone is generated by lightning flashes, which have been truly said, from time immemorial, to clear the air. The evaporation of saline solutions also disengages ozone, which is always found in increased proportion on and near the sea. Being more dense, and one and a half times more heavy, than oxygen, it descends to the earth, from which the vibrios ascend. It has also a strong phosphoric smell, and has the important property of combining with all bodies, except gold, platinum, and water. This property is its great weapon in the destruction of the vibrios.

The open air is the space in which ozone continually rules,

while the vibrios have the supremacy in close and fetid places where ozone is very seldom or never recognized. Every breath we take in such places begins to poison and to weaken our system, while every breath in the open air neutralizes poisonous agents and renews strength. D.

## The Aboriginal Americans.

To the Editor of the Scientific American:

There is, I think, abundant evidence that the osseous structure of the mound-building aboriginal peoples differed, to some extent, from that of all the present inhabitants of the globe, after making due allowance for individual peculiarities.

In my researches in this country, which was at one period densely populated by the mound builders, I have never seen anything resembling the short, strong bone running from the sixth cervical vertebra to the scapula, mentioned by Mr. R. K. Slosson, on page 244 of your volume XXVIII., and am inclined to look upon such a bone (if found) as a *usus nature*; but I have found several bones that I am unable to classify or pronounce upon, among which are the submaxillaries, of which I wrote you some time since.

I have a genuine mound builder's skull, which, although somewhat decayed, is a marvel to all who behold it and contrast it with what we know of modern man. There are marks on the skull caused by the copper ornaments with which this once noted character (for such he undoubtedly was) was buried. The man who stood under that skull was probably a stranger to disease, and knew no such thing as fear. A rifle ball would hardly fracture or enter his head, if it were to strike it in any way but perpendicularly. There is a peculiar formation where the muscles of the neck were attached, such as none of us ever saw before. This skull is an object of deep interest, and most especially would I call the attention of all phrenologists to a specimen so rare. The copper crown, with which his head was discolored, was so far decomposed that I was unable to save it.

Yellowbird, O.

S. L. N. FOOTE, M.D.

## Glue as a Healing Remedy.

To the Editor of the Scientific American:

For the last twelve or fourteen years I have been employed in a shop where there are over three hundred men at work; and, as is the case in all shops of this kind, hardly a day passes but one or more of us cut or bruise our limbs. At first there were but few that found their way to my department to have their wounds bound up; but after a while, it became generally known that a rag glued on a flesh wound was not only a speedy curative, but a formidable protection against further injury. I was soon obliged to keep a supply of rags on hand, to be ready for any emergency. I will here cite one among many of the cases cured with glue.

A man was running a boring machine, with an inch and a quarter auger attached; by some means, the sleeve of his shirt caught in the auger, bringing his wrist in contact with the bit, tearing the flesh among the muscles in a frightful manner. He was conducted to my department (the pattern shop), and I washed the wound in warm water, and glued around it a cloth, which, when dry, shrunk into a rounded shape, holding the wound tight and firm. Once or twice a week, for three or four weeks, I dressed the wound afresh, and it was well. The man never lost an hour's time in consequence. The truth of this statement hundreds can testify to. I use, of course, the best quality of glue.

Racine, Wis.

J. A. FIELD.

## The Hartford Steam Boiler Inspection and Insurance Company.

This company's report for 1873 has recently been received. It is an unusually interesting and important paper, and the brief summary that we give below does but scant justice to its merits.

Inspections in 1873: Internal, 8,511; external, 23,312—total, 31,823.

Defects discovered: Furnaces out of shape, 599; cases of fracture, 1,003; burned plates, 682; blistered plates, 1,737; cases of deposit of sediment, 2,263; cases of incrustation and scale, 2,180; external corrosion, 818; internal corrosion, 333; internal grooving, 206; defective water gages, 561; defective blow-out apparatus, 253; defective or overloaded safety valves, 321; defective pressure gages, 1,470; boilers without gages, 682; cases of deficiency of water, 113; cases of loose and broken braces and stays, and insufficient bracing, 465—total, 13,866.

Boilers condemned in 1873, 178.

Boiler explosions in the United States in 1873, 88; number of persons killed, 139; number of persons wounded, 164.

Cases of distortion and fracture of furnace sheets occur from low water, deposits of sediment, and a cold water feed. It is economy to heat the feed water, because it both saves fuel and prevents wear and tear. Sheets are liable to be fractured, if boilers are blown down when heated. Blisters in plates occur from the use of iron which is not homogeneous. Blisters should be cut off; and if the thickness of the plates is much reduced, patches should be put on. The deposit of sediment gives the most trouble to steam users. When the feed water contains carbonate of lime, it will be deposited in a hard mass, if the boiler is blown down when hot; but it can be washed out, if the boiler is first allowed to cool. Grease in the boilers seems to combine with the carbonate of lime, and sink down upon the plates, keeping the water from them and causing overheating and burning. Feed water heaters, with separating plates or chambers, seem to work well when the water holds solid substances in solution. The deposits of sulphate of lime are the mos