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## PUBLISHERS' NOTICE

New subscriptions to the Scientific American and the Scientific American Supplement will, for the present, be entered upon our books to commence with the year, and the back numbers will be sent to each new subscr
Instead of a contrary accompanies the order
Instead of a notice being printed on the wrapper, an nouncing that a subscription is about to end, the time of expiration is now denoted in the printed address each week,
so that the subscriber may see when the period for which he has prepaid is about to expire.

## lemuria, the lost paradise.

In our review of Mr. Alfred Wallace's new conclusions rel ative to the geographical distribution of animals, we noted his very important statement that the study of the presen habitations of both animals and plants may add greatly to our knowledge of the past history of our globe. In fact, the chief deduction which Mr. Wallace draws from his extended investigations is that such study may reveal to us, in a man ner which no other evidence can, which are the oldes features of the earth's surface, which the newest, and which have sunk beneath the ocean and thus been blotted out for
ever. It will be seen, therefore, that in the study of organic life we are brought face to face with one of Nature's own records. As in the rocks she writes of the birth of new con. tinents and new islands, and of the time when, and the conditions under which, these mighty additions to the earth's surface were made: so in the habits of organized creature she conceals the history of her destructive work. By the aid of such knowledge as to past organic mutations as the geolog ical record supplies us with, we can deternine the probable birthplace and subsequent migrations of the more importan genera and families; and in this way, while reaching a conception of that grand series of co-ordinated changes in
the earth and its inhabitants, whose final result is seen in the the earth and its inhabitants, whose final result is seen in the the same time we embark on a quest of lost lands.
( It is a remarkable fact that traditions substantially agreeing with the -Biblical account of the Deluge exist among every known people on the earth. Among the Hindoos, Greeks, Chinese, Mexicans, Peruvians, Feejee Islanders, the legends are closely similar; and it is but recently that, from the clay tablets of the Chaldeans, the late Mr. George Smith de ciphered still another account of a great flood. It is besides true that, among a great many peoples, there are traditions of countries which no longer exist. Even on old Venetian maps the lost island of Atlantis, lying west of the Azores, prominently figures. The Greek geographers mention the island; and its sea kings, tradition says, invaded Europe and Africa, but were defeated by the Greeks and their allies. Whether that land was a myth, or whether it was America, is an open question (in view of Dr. Schliemann's discoveries, it is perilous to pronounce any ancient legend baseless); but this aside, the story goes that the Atlantides became so des perately wicked that a deluge swallowed up their island Biblical critics, or at least the majority of them, have long since recognized the fact that, unless the supposition of a series of the most stupendous miracles be made, the theory of the Deluge covering the entire earth must be set aside and, in lieu thereof, the view is preferred that the floo covered only the small area forming the basin of the Eu phrates and Tigris rivers, which then was the sole region oc cupied by the human race. If, however, we couple the two traditions, namely, deluges and lost lands, there will ap-
pear a probability that all relate to similar phenomena, which pear a probability that all relate to similar phenomena, which
are the subsidence or overflowing of islands or portions of continents by the sea. Therefore it might be a more scien. tific view of the Flood to ascribe it to this well understood natural action than to venture so violent an hypothesis, even
on the Mosaic account, as that, 1656 years after his creation, on the Mosaic account, as that, 1656 years after his creation
man was still confined to the little region in Mesopotamia. In the whole range of deductions reached by the study of the distribution of animals, there is none more striking than that which proves that a vast continent once existed extend ing from the island of Madagascar to Ceylon and Sumatra Examination of the fauna of Africa and of Madagascar shows that in Africa, especially in the east, there is an abundance of large ungulates and felines (elephants, lions, etc.), all of types now or recently found in India and Western Asia. Again, the fauna of Madagascar is wanting in all the larger and higher African forms, and has a wonderful resemblance to that of Malaya and South America. We are, therefore, sure that Madagascar must have been separated from Africa before the assemblage of large animals, above referred to had entered. There is proof that, during early tertiary times, a continuous sea, from the Bay of Bengal to the British Isles, complete:y cut off all land communication between Central and Southern Africa on one side and the great continent of the eastern hemisphere on the other; so that Southern Africa and Madagascar were then united, and the latter island helped to form the great continent over which the tribe of lemurs were distributed. There is geological evidence, in Ceylon and South Inda, all going to show that those physical divisions were bounded on the north by considerable extent of sea, and hence probably formed part of a great southern continent. If we suppose that this
hypothetical land occupied the whole area now inhabited by hypothetical lana occupied ine whone area to Burmah, South lemuroid animals, we
China, and the Celebes.
Having established the possiblity of the existence of thi last continent, Lemuria, we need follow geology in the per son of Mr. Wallace no longer, but pass to Herr Peschel's views of the great importance of thishypothesis to the his tory of our race. Peschel, in his chapter on the first home of humanity, states that all oceanic islands, when first dis covered by European navigators, were uninhabited; and from this and other considerations, he concludes that the firs human beings were inhabitants of a continent. Then, by examining into the resemblances of various peoples, he log ically reaches the view that all our race, starting from common habitat, may have gradually ranged over all conti nents and peopled them. He next takes each grand division of the earth in turn, and, by studying its zoölogical forms and their changes, he seeks to determine which division was
the probable cradle of humanity. The basis of his inquiry is the fact that the more highly integrated creatures are the newer, the less perfectly integrated, the older; and measure by this standard, Australia and South America are speedily eliminated from the question. North America has remained primitive in the second highest order of mammalia. Our continent has no tailless ape; and it is where the highest animals appear-the chimpanzee, the gorilla, and the orang -that we must also look for man. Searching through the Old World, the lowlands of Siberia are geologically too re Old World, the lowlands of siberia are geologically too re-
cent; while if Europe had been the starting point, we should cent; while if Europe had been the starting point, we should
have found fossil men, as we have fossil apes. In Southern Asia, British India has been studied geologically with great minuteness; and judging from the ty pes of maramals found, our primordial parents cannot be localized there
The inquiry is now narrowed down to Lemuria, a continent, Peschel asserts, required by anthropology; for we can then conceive that the inferior populations of Australia and India, the Papuans of the East Indian Islands, and lastly the negroes, would thus be enabled to reach their present abode by dry land. Such a region would also be climatically suitable; for it lies in the zone in which we now find the suitable; for it lies in the zone in which we now find the
anthropomorphous apes. The selection of this locality, Peschel points out, is far more orthodox than it at the firs glance might appear; for we here flind ourselves in the neighborhood of the four enigmatic rivers of the Scriptural Eden-in the vicinity of the Nile, the Euphrates, the Tigris, and the Indus. By the gradual submergence of Lemuria the expulsion from Paradise would also be inexorably accomplished. To this may be added that ecclesiastical writers, such as Lactantius, the venerable Bede, Hrabanus Maurus, Kosmos Indicopleustes, and also the anonymous geographer of Ravenna, placed the Scriptural Paradise in Southeastern Asia, and some explicitly state that it was on a detached continent, and that the ingenious maps of the middle ages exhibit the first parental pair on a land surrounded by sea lying beyond India, This explains how Columbus, after the discovery of South America, taking it for an insular conti nent lying southeast of the mouth of the Ganges, wrote home to Spain: "There are great indications suggesting the proximity of the earthly Paradise, for not only does it cor respond in mathematical position with the opinions of holy respond in mathematical position with the opinions of holy it probable."
Herr Peschel's hypothesis need not disquiet those who pre fer to believe that Paradise was nearer to the eastern land of the Scriptures. Its value, its author states, is that "it challenges a geological investigation of Madagascar, Ceylon, and the island of Rodrique, as well as deep sea soundings in the Indian Ocean, to ascertain whether vestiges exist of the higher points of vanished Lemuria."

## CITY ARCHITECTURE

There is a widely extended discussion now going on as to the merits of the better class of houses built in these days. Dr. Richardson attacks them on sanitary grounds, and his condemnation is as sweeping and as unreasonable as that of
Mr. Ruskin; and the only remedy which these gentlemen propose for the people of Great Britain is to sweep awa every dwelling from one end of the island to the other. Such exaggerated statements come naturally from the lips of Mr. Ruskin, whose æstheticism does good by inculcating a taste or correctness and purity in style and for genuineness and thoroughness in work; but Dr. Richardson has more utilita rian aims, and such wild propositions serve only to repel people from the consideration of the many sensible sugges ions which he has made. Although it may be theoretically true that a kitchen should be at the top of the house, it i not recessary to destroy a dwelling that has one at the bot tom; and the people who live in modern houses are not so contemptible, either physically or morally, that their homes should be demolished at the instance of these architectural reformers on account of their unfitness for habitation. Ar chitects and hygeists would do much more for therr contemporaries, and for art and science too, if they would show us how to make the best of what we have; to ventilate thor oughly our basement kitchens rather than to tear down our houses; to lead our sewer gases away from our houses rathe than to pull down one side of the structure to build a ga shaft; in short, to improve the homes we must live in rather than to dream about those we might have if the world were created to day, and everybody began existence with un bounded wealth.
Of the comfort and wholesomeness of the better class of American houses it is impossible too speak too highly. The ventilation is gencrally well provided for, and the heating is equable, and the temperature moderate; dryness in the cellars is an object which our architects spend much pans to achieve; and usually ample light is admitted into the front and back rooms of our houses. But our reader will at once see that we speak of the houses found in the betterquarters of our large cities; and our tenement house in crowded neighborhoods, and many of the fllmsy frame structures in rural districts, are scarcely capable of improve ment without razing the entire structure. The evils in the first are due to heavy taxation, which compels landlords to crowd their tenants on to the smallest possible area, and to the inability of tenants to pay rents for large apartments. But there is no reason why large buildings, each accommodating great number of families, should not have every necessary provision for health and convenience. The houses of the building corporations in London and other European cittes,
which have been built especially to solve the problem of
health and comfort in crowaded neighborhoods, have a lower tleman's personal integrity. General Pleasonton, then, in electricity as the main duty of lightning rods. Projecting
death rate than many districts where the inhabitants are wealthy and the number of people to the acre small; and this alone shows that the exceptionally great mortality in New York and other large cities is not due solely to density of population.
But the chief faults in city architecture are to be found in the smaller and cheaper houses. Although many of these are well provided with modern contrivances for saving labor and adding to the convenience of their inmates, they are characterized by two bad practices, namely, disregard of
hygienic laws and flimsiness of construction. The excellent system of heating by furnaces placed in the basement is vitiated by making the heaters too small, so that they are overdriven in cold weather, and the air passing through them becomes too dry, thus rendering the lower rooms of ments of General Morin, Director of the Conservatoire des ments of General Morin, Director of the Conservatoiredes
Arts et Métiers in Paris, that air currents in contact with Arts et Métiers in Paris, that air currents in contact with
red hot iron become absolutely poisonous. It is safer, says red hot iron become absolutely poisonous. It is safer, says
Mr. James C. Bayles in an excellent paper on city architecture in the International Reciew, to keep the temperature of the surfaces of a heating furnace below $500^{\circ}$ Fab. Again, by faulty construction, many of these furnaces carry car bonic oxide and sulphurous gases into the apartments.
Ventilation is a subject on which much has been written, and yet it is little understood. That providsd by the open fireplace is nearly perfect; and difficulties on this subject are found mainly in small houses heated by hot air. Draughts of air in such houses are frequently kept out with weather strips, and air is only admitted by chance opening of oors. The plumber's work is another defective element in these houses; and the dread zymotic diseases which arise from sewer gases bear terrible witness to the truth of this state-
ment. These diseases cause nearly 30 per cent of the total mortality of New York city. And the difference betwees good and bad plumbing, says Mr. Bayles, is so slight as to escape the notice of any but a trained expert, and here the responsibility of thearchitect becomes of the utmost impor tance.
The want of solidity in the building of cheap houses is the cause of the destructiveness of fires in this country. Mr Bayles averages our annual losses by fire at $\$ 100,000,000$.
Structures in Structures in which cheapness was the only consideration of
the architect are in many places so numerous that solitary the architect are in many places so numerous that solitary
buildings considered fireproof are destroyed by the fierceness of the conflagration which rages round them. That this can readily be remedied is shown by the example of many European builders, whose cement floors and well plas tered woodwork are uninflammable, and in whose houses fire seldom spreads beyond the room in which it originates.

## the working of patents in canada.

A section in the patent law of Canada requres that the manufacture of the invention or discovery must be commenced within the realm within two years from the date of
the patent, or the latter becomes void. Another clause in the same section declares that a patent shall be void if, after the expiration of twelvemonths from the granting of a patent, the patentee or assignee causes to be imported into Canada the invention for which the patent is granted. A clause was subsequently added, however, granting the Commissioner the privilege of extending the time for introducing an in vention beyond the two years if application is made to the Commissioner not less than three months previous to such expiration, and if ample evidence is adduced that it has been beyond the patentee's control to comply with the two years requirements.
Some parties who took patents two years ago have supposed that it was sufficient to hold the patent by importing into the country various parts of the entire machine, and putting them together in a Canadian manufactory. The able Commissioner, Mr. Taché, decides that suchimportation does not accord with the spirit or intent of the law; but in a case
which recently came before the Commission, he rules "that the respondent having refused no one the use of his inventions, and th the importation, assented to by him to be made, being inconsiderable, having inflicted no injury on
Canadian manufactures and having been so countcnanced Canadian manufactures and having been so count nanced, not in defiance of the law, but evidently as a means to create a demand for the said inventions, which the patentee intended to manufacture, and did, in fact, offer to manufacture in Canada, he has not forfeited his patents."
It is evident from this decision of the Commissioner that he intends to construe the laws in a spirit of liberality towards the foreign patentee when it can be done without prejudice to the interests of Canadian manufactures.

## the blue glass deception.

An open letter addressed to us by General Pleasonton, of blue glass notorrety, has appeared in the columns of an evening journal of this city. The missive relates to our recent criticisms on the writer's aileged discoveries. It is altogether too lengthy for reproduction here, nor is such publication otherwise necessary, masmuch as it clearly shows that its author has not perused our artucles with any degree of at tention, or else that he totally misapprehen
the facts and arguments we have advanced. the facts and arguments we have advanced.
The main point of General Pleasonton's
The main point of General Pleasonton's letter is an objec-
tion to our use of the tion to our use of the word "deception," a term which we employed, advisedly, since we believe that General Pleason. ton deceives both himself and the public. a view which we
upport of his theories, triumphantly claims that they must be points do not attract the thunderclouds; but elevated portions well founded, because " the highest scientific authority in the : 0 ' the ground, as well as trees and houses, when in conducting country "-to wit, the Commissioner of Patents-has granted communication with the earth, become charged by induca patent on their application. That the above official tion, and then exertattraction, whether there are pointed rods is ex officio the greatest of American scientists will be in the vicinity or not. The latter will, by their property of amusing news to our readers. It raises the question as to silent gradual discharge, serve to diminish the electric tenamusing news to our readers. It raises the question as to silent gradual discharge, serve to diminish the electric ten-
who is the highest scientific authority now, the Commissioner sion; and in place of being a source of attraction they will who is the highest scientific authority now, the Commissioner sion; and in place of being a source of attraction they will
who signed General Pleasonton's patent or the present in- diminish this attraction, and take from the impending diswho signed General Pleasonton's patent or the present incumbent, or which one of the numerous gentlemen who have
adorned that office for brief periods in the past. Besides, o claim that, because something is patented, it is necessarily scientifically sound and of major importance, betrays but a small acquaintance with inventions in general. The Patent Office does not indorse any device. The patent is simply granted on prima facie evidence that the idea is new and useful; and in endeavoring to extend the benefit of the proection to inventors, the examiners favor the latter, or should do so, in the highest degree, acting favorably whenever there is a possibility of the existence of even a germ of some uture better conception. As it is, the Patent Office rejects very many more applications than it ought to; and on the other hand, it is constantly erring, often egregiously, in granting absurd claims. Because the Commissioner of Pat
ents, in allowing General Pleasonton's patent, made a very ents, in allowing General Pleasonton's patent, made a very
sorry blunder (which, by the way, we are inclined to think is chargeable to the examiner, as of course the Commissioner knows nothing of the immense majority of patents to the documents of which his signature is appended in advance), certainly the General cannot convince sensible people that his abnormal theories obtained any indorsement.
The remainder of General Pleasonton's letter is but a reaffirmation of his interpretation of his alleged results; and the assertion that blue glass alone does not produce the beneficial effects claimed, but that they are wholly due to "associated light." Assoclated nght in his grapery came through one eighth blue glass and seven eighths clear glass. Sunlight through blue violet glass, spectroscopically examined, as we previously explained-and a distingushed physician of this city has since corroborated our statement by further experi ment-is nothing but sunlight diminished in intensity ThereforeGeneral Pleasonton'sclaimnow is based onpuresun light, one eighth of which is diminished 90 per cent: in other words, sunlight weakened $\frac{9}{80}$ in intensity, according to Mr . Gaffield's data, elsewhere noted. As GeneralPleasonton de-
votes a considerable part of his letter to informing us on what we based our own criticisms-a favor on his part quite unnecessary, as well as wholly mistaken in its premises; and as a still larger part is given up to mere assertion, raingled with curious misunderstandings of our very plain statements, we think that no further notice of his epistle is required. For the benefit of sundry blue-glass-crazed con-
temporaries, we would add, however that we see no neces. temporaries, we would ada, however that we see no neces.
sity of repeating the large number of experiments-some dating back two centuries-which very positively disposed of the whole subject, even if by not doing so we earn the
imputation of closet theorists. Our long experience in dealing with crrcle squarers, perpetual motionists, Keely motor people, and now blue glass adherents, besides alt the other deus to bear such anımadversion with unruffed equanımity.

## POINTED LIGHTNING RODS.

The important question as to the proper form of hghtning ods occupied the minds of many savants some 75 years ago, and filled part of the scientific journals of that period. It
has lately been renewed, and, as formerly, there are defend has lately been renewed, and, as formerly, there are defend
ers and antagonists of the pointed rods. It is argued by the latter that the object of a lightning rod is not to attract the thunderclouds to the building to be protected, and induce discharges there, and it is clamed that long, upward-projecting lightning rods do this very thing, and that, although they are a protection in one sense, giving a ready path to the discharges, they become a source of danger by attracting the electrically charged clouds, and making discharges more fre-
quent. Let us test this reasonng by the well known laws of quent. L
The amount of electric attraction depends on the extent of the attracting surfaces, and on their distance. If a series of
clouds, say of a square mile in extent, floats over the earth's clouds, say of a square mile in extent, floats over the earth's surface, these clouds being charged with positive electricity, they will induce, in that part of the earth's surface with in the attractive influence, negative electricty. This charge will increase as the distance decreases, as the clouds follow the direction of the attraction; untll at last, when the distance
becomes small enough, an explosive discharge takes place, the stroke of lightning consisting in the simultaneous discharge of positive electricity from the cloud to the earth, and of negative electricity from the earth to the cloud. The man1festation of light and heat is the simple result of the neutralzation of the two electricities, and will be greater in propor tion as their quantity and intensity were greater.
Looking at the subject exclusively from this point of vew, all that appears necessary is to provide a ready path to he electric discharge, such as a rod made of good conducting material, of sufficient capacity to be uninjured by the strongest current, and well connected with the ground, so as cation between the cloud and the earth, which, previous to the stroike of lightning, were charged with opposite kinds of
electricity. If we consider the function of elevated points on lighting rods, we find that Benjamin Franklin was correct when he recognized the gradual absorption or discharge of
harge a great deal of its violence.
We must, therefore, come to the conclusion that elevated points are desirable as upper terminalsoflightning rods; and experience fully verifies this conclusion by practical results. One of the oldest instances took place in the tower of the cathedral of Siena, in Tuscany, which had been very frequently damaged by lightning. In 1776, a lightning rod was erected; but the people objected, and some of the priests called it an impious contrivance, invented by a heretic; but when it was found that the tower was rarely struck, and that once during a heavy thunderstorm the stroke followed the lightning rod without doing the least damage, the heretical contrivance came into proper esteem. The starlike terminations of some lightning rods are injurious. Faraday has proved that a single point discharges and absorbs electricity faster than a bifurcated or trifurcated terminal; if more points are added, still slower becomes the discharge, by their mutual interference; until at last, when the top is surrounded with an infinite number of points, a ball is the result, and the silent discharge ceases altogether.
But the upper pointed terminal is not the main part of he lightning rod; because it may be omitted altogether, although it is better to attach it. The main part is the ground connection; and as this is out of sight, it is often shamefully neglected. Much ignorance prevails in this respect also; hence it frequently happens that the electric current leaves the rod, to enter the house and pass off by the gas, water, or sewer pipes; and in its course it sometimes causes considerable damage. A connection with a water course, a well(nota cistern), or at least with the moist ground, is not imperatively necessary. If the soil is silicious and naturally dry, it is best to drive some pointed iron bars into the ground in such places as they are most likely to reach noisture, and connect all their upperends with the conducting rod. The rule that requires a conducting surface equal to that of the roof to be protected, to be buried in the ground, given by some would-be authorities, has no foundation either in theory or practice. It is not the electric charge of a roof which has to be disposed of, but that of a cloud over it; and he latter has sometimes an extent of several square miles. All reported failures of lightning rods may be traced to defective connections. especially ground connections. Rods that are faulty from the outset are often made useless by subsequent neglect: as we found some years ago at the village of Gilboa. Schoharie county, N. Y. The church was lage of Gilboa. Schoharie county, N. Y. The church was
situated on a hill, and quite exposed; ; the under end of the situated on a hill, and quite exposed; the under end of the
lightning rod, which in its upper end was connected with the lightning rod, which in its upper end was connected with the
spire, was pulled out of the ground, and lay on a pile of firewood in the rear of the church. If this church had been struck and burnt down, it might have been pointed out as an example of the utter uselessness of lightning rods.

## Excitememt the Stimulus of Business.

There are a numerous class of men who live almost entirely upon excitements. In a calm dispassionate flow of life and business they are stupid and powerless; but stir up the placid sea until it surges with violence, and they are then ready for a mission-armed and equipped for the toil of life. Such minds are the martyrs of this age of enlightenment-the life they lead is a consuming one, and vitality is spent with a prodigality more than herocc. The requirements of business are making this method of living more imperative, and wthout it success is beyond a reach. Half a century since the out it success is beyond a reach. Half a century since the
rivalries now experienced in all departments of human inrivalries now experienced in all departments of human in-
dustry were then unknown. A new order of mind and new energies are called into requisition. The business man of energies are called into requisition. The business man of
the last generation would hardly be recognized by the prevailing caste. Flesh and blood are capable of enduring many hardships, but the delicate nervous organization, 1ts accompaniment, breaks down at length under the incessant tension. Disregarding the friendly premonitions of temporary illness, the exhausted mind holds on its work by the necessary and agreeable stimulus of fresh excitements, until a sudden reaction crushes its vigor, and then comes on the weakness, satiety, and sorrow of hopeless infirmity.
It is not every daily journal the record a that we notice in amost every daily journal the record of a faltering in the ranks of business men. This successful merchant or manufacturer has mparred his health by overwork, which means oo much nervous excitement, and he starts for Europe in the hope of bulding up his health on a broken foundation. Another professional man is aroused from his dream of am bition with the frighttul conviction that phthisis has fastened its deadly grasp upon his vitals; and the grim mages of weakness and decay henceforward fill his vision. There has been an alarming increase of disease withn a few years, having its orighn in the causes we have named, and the effect of it should be to produce greater moderation What if the profits are less? They can be continued longer and life made happrer.
There is no necessity for this waste of life-nt is a sheer delusion, the effect of a foolish ambition. Better accept the heritage of poverty or a moderate success than the intallible necessity of an early disease.-Hunt's Merchants' Magazinc.

