

## Correspondence.

## Pottery Remains in Arizona.

To the Editor of the Scientific American:

Captain MacDonald, U.S.A. (retired), tells me of an interesting experience while campaigning on the desert between the Sierra Tunicha Mountains and the San Juan River in Arizona, near Agua Nigra. The troops marched for several miles along a mesa which was thickly strewn with fragments of Indian pottery. The area covered by this deposit was probably of many square miles. The level of this mesa was high above the level of the water courses, and how such vast quantities of earthenware ever reached this position is a question. The officer's theory was that in bygone times a flood washed out an Indian pottery establishment and brought the fragments to the mesa. The pottery was marked only with red painted squares.

M. Y. B.

San Diego, Cal., August, 1892.

## The Mamo.

To the Editor of the Scientific American:

In the issue of June 4, 1892, a quotation is given from the very interesting article of Mr. Lucas on "Recently Extinct Vertebrates," published in the report of the National Museum. The reference to the birds of the Hawaiian Islands is, however, quite incorrect. "The last ornithological collector who returned from the islands found no specimen of the *mamo*," it is true; but there were many other things that he did not find in his short visit. Two years ago three *mamo* came to the sandalwood tree under which I had pitched my tent in the mountains of Hawaii, and the present summer Mr. Palmer has captured one alive. The Bernice Pauahi Museum has four specimens. The feathers were never used to make war cloaks, and none of these have been made for a hundred years. Their use was in making *leis*, or necklaces, and ornamenting the *alaneo*, or royal *mamo* robes. There is a very small *mamo* cape in the British Museum, but none here in possession of royalty. None have been made for seventy-five years, and yet twenty-five years ago *mamo* were found without trouble in the forests back of Hilo, Hawaii.

The tailless rail is probably extinct, unless the rail from Laysan Island proves to be a mere local variety of this bird. We have in the museum a pair of the rail and a pair of the chaetoptila, and there are several other specimens known. The threatened extinction of the native birds is due to ornithological collectors in part, but the wildcats and introduced mongoose and mina birds do their share in the destruction.

WM. T. BRIGHAM,

Curator B. P. Bishop Museum.

Honolulu, H. I., July 27, 1892.

## Patent Law Amendments.

To the Editor of the Scientific American:

The postponement to the next Congressional session of Senate bill No. 3,246 affords opportunity for American inventors everywhere to examine its provisions, and if dissatisfied with either of its eleven sections, to interrogate their representatives in Congress on behalf of such modifications as they may think desirable. Section 1, especially, seems worthy of their attention. Its ostensible purpose is the amendment of Clause 2 of Section 4,887 R. S., by which—as is well known—the duration of a United States patent is made dependent upon that of the earliest expiring previously issued foreign patent for the same invention; but the amendment would seem to leave the most obnoxious features of the clause substantially unchanged. Especially vexatious has the clause proved to the creators of those notable devices which, by inaugurating new arts, and opening up hitherto untrodden fields of industry, constitute, to some minds, the chief justification of the patent system. If, as commonly supposed, our legislators aimed, by the clause spoken of, to confer on their constituencies some kind of advantage over the foreigner, that aim has signally failed. The weapon's recoil has proved far more dangerous than its discharge! Of patent-granting countries, ours is now foremost alike in the liberality of its patent law and in the number and character of its useful inventions.

The sum total of "aliens" prevented from exacting royalties on this side of the ocean is a mere *bagatelle* to the host of American inventors deprived by this ill-vised clause of the considerable revenue that would have been drawn from the foreign user and circulated here; for it is notorious that a large majority of our inventors, rather than jeopardize their home patents, elect to forego the dangerous foreign privilege, with the result that American inventions are generally free to all the world outside of the United States. The present writer believes that the effects of the clause have been only evil, and that continually, and would rejoice to see it expunged from the statute book, or, if that may not be, that American ingenuity at least be relieved of this unmerited and impolitic restriction.

GEO. HENRY KNIGHT.

Northampton, Mass., August 12, 1892.

## HOUSEHOLD PESTS—WITH SOME HINTS HOW TO GET RID OF THEM.

During the season of warm weather there are few houses, especially those in town, that are not invaded by one kind or another of the numerous species of insect life which we consider as household pests, and which often cause much annoyance to the inmates. However vigorous the customary "spring cleaning" indulged in by our housewives may be, these intruders usually manage to make their way in and elude detection. The situation and locality of a dwelling house frequently has a good deal to do with the appearance of these objectionable visitors, and the difficulty is to hit upon the best means of getting rid of them.

Fortunately in this country—mainly owing to its much abused climate—our household pests are not by any means as formidable to deal with as those in tropical countries, where the centipede and tarantula prowl about seeking whom they may devour. Yet at times our own particular pests are quite annoying enough, when they arrive in numbers.

To begin with, the ubiquitous household fly, which breaks its pupal skin on the first approach of warm weather, is a universal intruder. Even churches are not sacred to him. There are two methods of exterminating flies, either by poison or traps; but the latter is certainly the most effective. For this purpose pieces of thick twine or tape, which have been dipped in a sticky, viscid solution or bird-lime, and suspended from the chandeliers or other frequented places, are most effective. The sticky solution can be made by dissolving resin, 10 parts, and gum thus, 5 parts, in 7 parts of linseed oil, by the aid of gentle heat, and allowing to cool, when it is ready for use. This compound may be spread on sheets of waxed paper or plates, which placed about form excellent traps. Then there are the numerous varieties of "fly papers" in use. These are composed of unsized paper soaked in a weak solution of arsenic or quassia wood. An infusion of quassia made by allowing two ounces of the chipped wood to stand in a pint of cold water for a few

hours, then decanting the liquid and placing it about in shallow vessels, also answers well. This solution is not poisonous to animals. The destructive moth, which insidiously deposits her larvæ in our furs and upholstery to work havoc therein, may be successfully circumvented by several methods. One of the best preventives is to place small pieces of naphthaline about in likely places for the moth to attack. Naphthaline is a product from the manufacture of coal gas, with a peculiar but not objectionable odor, which soon passes off when exposed to the air. Another popular plan is camphor used in the same way. A still more effective method is to spray benzine, by means of an atomizer, over the furs, etc., before putting away, as it is fatal to the insect in all stages. Care must be exercised when spraying the benzine that there is no fire or artificial light of any kind in the room where it is used, the vapor being highly inflammable. Powdered colocynth forms another excellent exterminator, and the numerous kinds of insect powder when dusted about are also useful. In some parts of England ants are a great source of annoyance when they get into a house. The best plan is, of course, to discover the pests if possible, and exterminate them wholesale. If this cannot be done, the ground flower heads of the *Pyrethrum roseum*, commonly called Dalmatian or Persian insect powder, sprinkled about in their haunts and placed on their track, will drive them away. This powder, which is not poisonous to animals, is extremely useful in destroying all kinds of insect life. Like other things in much demand, it is often adulterated, the best varieties being of a dull, yellow-ocher color.

Cockroaches and black beetles, which infest the lower regions of many houses in enormous numbers,

are extremely objectionable pests, and sometimes difficult to get rid of. They increase and multiply in any place where they can get warmth. Cockroaches will eat away plaster, and often make their way into a house between the flooring and skirting boards. To prevent these insects coming, all such crevices and holes should be carefully stopped up early in the spring.

any intruders make their appearance, ground borax should be plentifully spread round the room and in their haunts. Cockroaches have a great antipathy to borax, and its continued use will effectually drive them away. It also has the advantage of being harmless to domestic animals. Insect powder well sprinkled about is also useful, but as cockroaches have often to swallow a great deal before it proves fatal, any victims found afterward should be swept up and burnt. Several kinds of traps may be utilized, but, as a rule, they are not very successful for any length of time.

Mice often give trouble and do considerable damage when they invade a house. When there are dogs or other household pets about, one of the safest ways of exterminating them is to first lay down some oatmeal mixed with sugar, which will be found to have disappeared by the morning. Then, after this has been done for several nights, mix also a fair quantity of plaster of Paris with the oatmeal and sugar, which will prove too indigestible for Mr. Mouse, and after one meal of the compound he will not require another. Of poisons, phosphorus paste is probably the safest to use. It should be spread on small pieces of cheese or bread and sugar, and placed

about the rooms the mice frequent. A good trap is also effective; and we must not forget the valuable assistance that can be rendered by a good cat, who will always scare the enemy, if he doesn't always catch him.

Fleas are usually brought into a house by dogs, and the best method of getting rid of them is with the aid of good pyrethrum powder, which when sprinkled about will soon drive them away. All beds constructed of wood should be taken to pieces at least twice a year, and the woodwork well brushed over with a solution of bichloride of mercury (1 per cent), which will destroy all germs of insect life, and is a safe and wise precaution. Fortunately we are not much troubled in Great Britain with that irritating and active little pest, the mosquito; but a hint or two how to circumvent her artful little ways (for it is the female mosquito who thirsts for human gore) may be of use to those who travel in warmer climates. The male is said to be satisfied with vegetable juices, and does not accompany his spouse on her bloodthirsty forays. Would that we could persuade her to remain with him! The best preventive against the incursions of this little pest is to sponge over those parts of the body exposed with a five per cent solution of carbolic acid before retiring to rest. This is an excellent plan, and renders one almost proof against attack. A small quantity of carbolic acid or powder evaporized in the apartments they frequent will also drive them away, and a free use of insect powder is another excellent method of expelling the invader.—C. J. S. T., in *Pall Mall Budget*.

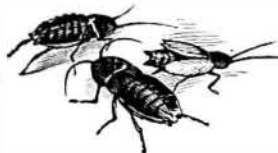
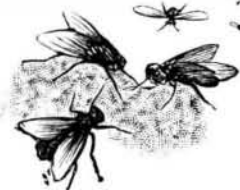
Advantages of Fogs.

No less an authority than the president of the Institute of Civil Engineers has declared that the sulphurous vapor produced during the combustion of coal is most beneficial to the health of the inhabitants of London, disagreeable though it undoubtedly is. As many as 350 tons of sulphur are thrown into the air in one winter's day, and the enormous quantity of sulphurous acid generated from it deodorizes and disinfects the air, destroying disagreeable smells emanating from refuse heaps and sewers and killing the disease germs which find their way into the atmosphere. There may be a good deal of truth in this view, but there is undoubtedly another side to the question. It is an old comparison that a doctor and his drugs bear a relationship to the patient and the disease like that of a policeman toward a householder attacked by a garoter. The policeman lays about with his truncheon, sometimes he hits the householder, sometimes the garoter, and the good or ill which results from his interference will depend upon which party happens to get the most and the heaviest blows. This simile is admirably suited to sulphurous acid in London fogs, for although it may be beneficial to the London householders, by destroying microbes, it certainly frequently does them harm by attacking their lungs and bringing on bronchitis and asthma, which sometimes prove rapidly fatal, to say nothing of the minor discomforts of a disagreeable taste, filthy smell, stuffed nose, husky throat, smarting eyes, and headache. We think that, healthy though the London fogs may be, the discomforts they cause are so great that Londoners would be really better without them, and that less disagreeable and equally efficient means might be found to clear the air of microbes, while at the same time these other remedies would be enormously cheaper, for they would not entail the almost complete stoppage of traffic or the enormous expenditure of gas and electric light which a bad fog occasions.—*Lancet*.

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**Canary Bird Breeding in Germany.**

The United States consular clerk at Berlin says that third in money value among the articles exported to the United States from the consular district of Hanover during the last quarter were canaries. For more than a century canary breeding has rendered bare existence a possibility to many poor people in Germany, and has brought a competence to others. Fifty years ago the industry had grown to such dimensions that it became necessary to seek a foreign outlet for the trade. Salesmen were accordingly sent out, first through the Rhine districts, then to Belgium and Holland, and, soon afterward, to England. The German canary dealers soon succeeded in establishing a brisk trade with St. Petersburg, the birds being brought by carrier to Lubec, and thence forwarded by ship to their destination. Encouraged by their success, the German bird dealers, about the year 1850, began making shipments to New York. This proved a very profitable business, and after the introduction of steamship lines, birds were sent to South America and Australia.

Canary breeding in Germany has, from the commencement, been chiefly a home industry of poor people. The principal seat of the industry was formerly the Hartz Mountains, where the poor mountaineers, engaged chiefly in the timber and mining industries, were in great need. Almost every family then had in the sitting room, the bedroom, or the garret a breeding place for their birds. In the summer the food necessary for the birds was easily obtained, and before the winter came the dealer had purchased them. After the Hartz Mountains became more frequented by visitors desirous of benefiting by the pure Hartz air, the poverty of the mountaineers was diminished, and the canary industry fell off more and more. At present only fine singers are bred in the Hartz, and for these the dealer must pay a high price. The industry was then transferred to Eichsfelde, in the province of Hanover, where there are many very poor weavers. Nearly all of these are now engaged in breeding the cheaper varieties of canaries. The industry exists also in the poorer districts of Hesse, in the great Luneburg Moor, in parts of Westphalia, and among the Sudetic Mountains (Erzgebirge) in Saxony. In the fruitful districts of the province of Hanover, where there is not so much suffering, the business is not carried on extensively. In recent years large numbers of birds have been bred in the cities, chiefly as a pastime. The extent of the canary breeding industry is shown by the fact that about 250,000 canaries are bred every year in Germany.

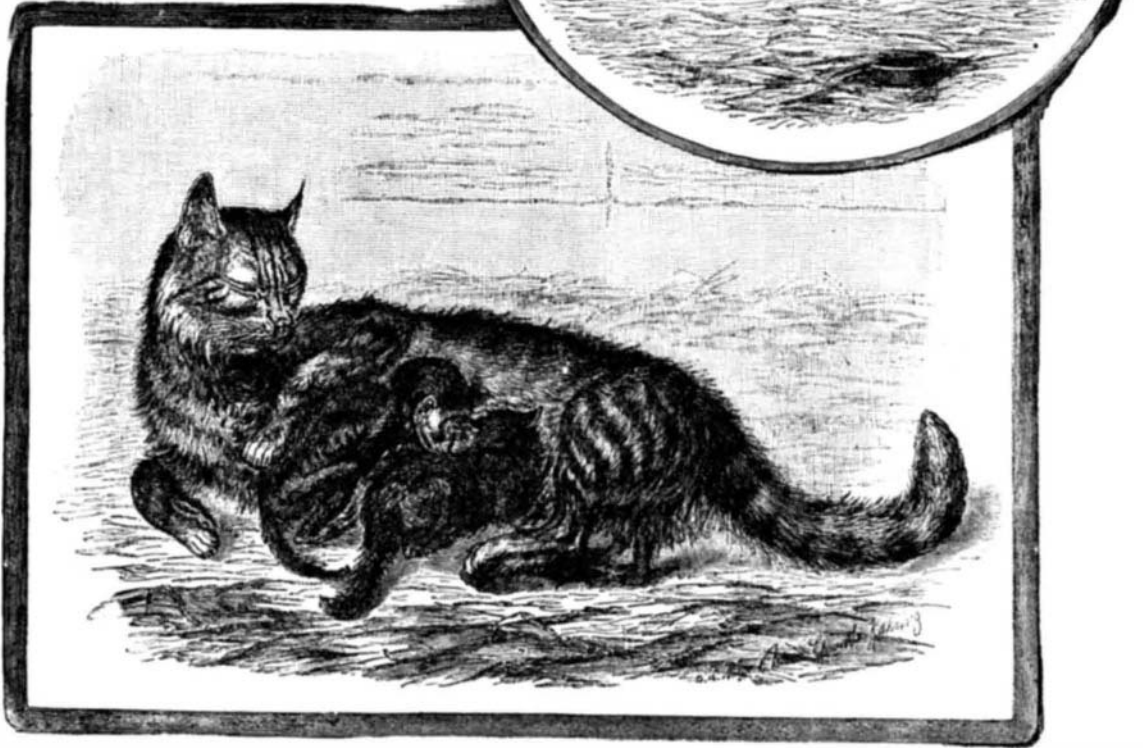
Among the foreign markets the first is the United States, which takes, in round numbers, 100,000 birds annually. Next in importance is the English market, which takes about 50,000 per annum. Then come Brazil, Chile, the Argentine Republic, and Australia. To these countries salesmen are sent with canaries every year. The remaining birds, especially the finer Hartz Mountain birds, are sold in Germany, where more value is attached to fineness of song, and where higher prices can be obtained than anywhere else. The average price for ordinary canaries is from three to four marks for males. Hence the canary industry adds about 1,000,000 marks per annum to the national wealth of Germany, and this amount goes chiefly into the hands of the poorest class. The growth of the industry is said to be due to two causes: (1) The German bird dealers have always been very enterprising, and (2) the canaries bred in Germany are said to sing better than any others. About two-thirds of the canaries exported annually from Germany to the United States are imported by a German resident of New York, whose German home is at Ahlfeld, in the province of Hanover, whither the birds are brought from all parts of Germany. At Braunlage in the Hartz this dealer has a factory which is capable of turning out every day the material for thousand bird cages. This material is given out to the peasants, who make the cages at home. From Ahlfeld the birds are shipped to New York *via* Bremen, accompanied by attendants. Each attendant has under his care about a thousand birds, each in its own wooden cage.

A FRENCHMAN, M. Branbelay, has succeeded in making pearls by simply boring holes in pearl oysters, dropping in minute glass beads, and then hermetically sealing the holes.

**A CAT AS FOSTER MOTHER OF AN APE—A PICTURE FROM THE LEIPZIG ZOOLOGICAL GARDEN.**

There are plenty of examples in the animal kingdom which prove that most creatures, whether mammals or birds, are capable of conferring their motherly love on the offspring of others as well as on their own. The hen gives the duck that it has hatched the same care that it gives its own chickens, the dog will act as foster mother to a young lion, and the long-eared Egyptian goat as nurse to a young panther. But the exhibition of motherly care to be seen in the well arranged Leipzig Zoological Garden (in charge of Mr. Ernst Pinkert) is new and peculiar, offering a pleasant scene to the lover of animals. A fine, great reddish-brown Angora cat has become foster mother of a very young ape. As the little thing lost its own mother when it was very small and was greatly in need of another nurse, it was given to the Angora cat. The experiment proved successful; the cat received the little orphan affectionately, and cares for it as well as for her own kitten.

The cunning little ape hangs, in the literal meaning of the word, on its tender mother, and is never left by her. Clinging by all fours to the shaggy fur of the mother cat, he accompanies her in all her walks, and the cat is not inconvenienced by her four-legged parasite. If he is torn away from this embrace, he immediately jumps, crying loudly, to his accustomed place. At meal time he enjoys the same rights as the kitten. It is a charming picture—the old cat with her little one, which she caresses fondly, and the little ape that likes



A CAT AS FOSTER MOTHER OF AN APE—A PICTURE FROM THE LEIPZIG ZOOLOGICAL GARDEN.

so well to lie in her soft, warm fur. When the cat rises she takes her living burden, and walks around, wagging her tail, in the building belonging to beasts of prey in the Zoological Garden. Cats have been known to bring up squirrels, but this is the first time on record that one has acted as mother to an ape.—*Illustrirte Zeitung*.

**The Record of a Walking Delegate.**

The case of the Grand Central Hotel, on Broadway, is a typical one, which deserves careful attention. Tilly Haynes, a Boston hotel keeper, some time ago leased the Grand Central and came to New York to expend \$100,000 in the work of renovation, of which fully three-fourths was to go for labor. He made terms with his men which were mutually satisfactory. Work had hardly been begun, however, when the walking delegate appeared and demanded that the men should work only eight hours a day instead of nine. Mr. Haynes acceded. A week later the walking delegate came around again and said that some of the carpenters were working for \$3.25 a day, and that they must be paid \$3.50. This demand also was yielded to. A few days later the delegate informed Mr. Haynes that he had two stairbuilders from Boston, and that, although these men were union men, they could not work unless they had their union tickets changed and paid the fee for working in this city. This trouble was settled by the return of the offenders to Boston.

The next incident is told as follows:

"While the men were at work, the walking delegates entered the building and walked about through it at their pleasure, taking down the workmen's names and asking if they belonged to the union. One of the carpenters replied: 'None of your business.' The next day the delegate met the men when they came to work and told them a strike had been ordered. Some of the men shed tears and said their families were suffering, but all obeyed. Mr. Haynes next received a visit from the Grand Council, who informed him that their delegates must be respected. After consultation the council agreed that the man who had insulted their delegate and the rest of the men might go back to work, but the man must by Saturday become a full member of the union. Notwithstanding this, when the men came to work the next morning, the delegate declared that not one should go to work until the man who had insulted him was discharged. The difficulty was finally compromised by the man being given his wages, in order that he might immediately go and pay his dues and become a member of the union. It was three days, however, before he could get himself into regular standing, and during this time none of the men were permitted to work."

This was by no means the end of Mr. Haynes' troubles with the walking delegate. He had made a contract with a Boston firm to put in some new marble, and on learning this the delegate for the third time made the men quit work, though, upon Mr. Haynes' assurance that no marble from Boston was actually being laid at that time, they were permitted to resume work. Then Mr. Haynes learned that the delegates were going about among the men collecting \$1 from each for allowing them to work. When the marble from Boston arrived, the delegates refused to allow it to be unloaded, and when Mr. Haynes sought the protection of the police, the delegates called out all the carpenters and painters. Then the representatives of the steam fitters told Mr. Haynes that he would have to send his engineer back to Boston, and on his refusal the union fitters were made to stop work.

By this time Mr. Haynes decided that he had suffered enough from the tyranny of the walking delegate, and he decided to employ no more men who were the slaves of such delegates. He secured a full force of non-union men, whom he finds better workmen than the union men.—*Iron Age*.

**Irrigation.**

It has been demonstrated in California that surface irrigation is not the best method for orchards. The system is untidy, wasteful, and causes an unnecessary growth of noxious weeds. It also stultifies the tree growth, causing the roots to form in a ball near the surface. An orchard designed for market fruits should be irrigated by means of underground conduits or cement pipes. These are laid below the freezing point and made of sufficient dimensions to carry the requisite quantity of water within three or four feet of the tree. Small holes cut in the top of the pipes and covered by boxes to prevent the holes filling with earth, allow the water to percolate slowly out from the pipe and moisten the soil at the roots of the tree.

By this method the roots go downward, giving the tree a firmness to resist rain storms and withstand the effects of continued dry weather in case the water supply is temporarily exhausted. This system may be considered expensive, but the additional yield of fruit will justify such expenditure. The field of the future irrigated fruit market will be large enough to justify systematic underground tiling as well as piping. Drainages will be more extensively practiced as the market orchards increase, and although expensive, as it may seem, these orchards will be valuable, dividend-paying properties.—*Irrigation Age*.

RECENT experiments made in Germany go to show that asbestos paper is not only of no advantage in a floor as a protection against fire, but it probably aids the conflagration.