toes, with which, in addition to the leeches and ticks, they seem to be tormented the whole year round. They are excellent swimmers, taking to the water almost before they can walk ; and they rely upon the sea for the principal supply of their food—turtles, oysters, and fish.

Correspondence

American Guns.

MESSRS. EDITORS :—In an editorial article in your last issue, under the caption of "American guns," you quote from the Pittsburgh *Chronicle* an item in reference to the 15-inch guns, containing a grave misstatement and a very absurb suggestion. The 15-inch guns have *not* been condemned by the Department, as failing to realize the results anticipated from their use ; and the statement is founded on the most unreliable of sources—a Washington rumor. Some modification of the model is being made, but this would seem to prove that the guns have, in the main, proved satisfactory. In order to admit of their use in the monitor turrets, the first guns were made much shorter than the sea-coast 15-inch ; those hereafter made will be at least eighteen inches longer than those now in the turrets, and will be reduced at the muzzle to an exterior diameter of about twenty-one inches—three inches of metal, only. Such of the short guns as had not been forwarded have been turned down at the muzzle to conform to this modification, and one has been severely tested in Washington, proving that it has not been weakened by the reduction of the muzzle. I presume it is generally known that the monitor ports will be slightly enlarged, and the muzzles of the guns protruded, hereafter, in firing. These facts do not seem to indicate any design on the part of the Government to abandon the new 15-inch guns.

The brilliancy of proposing to increase the efficiency of a gun, objected to on the score of being already too weak, by rifling it, needs no comment. It is sufficiently striking and must commend itself to the Department. PITT.

Pittsburgh, Pa., Oct. 6, 1863.

Gas from Petroleum Tar and Hard Wood.

MESSRS. EDITORS :—It is generally supposed that the gas oils and residuum or tar distilled from petroleum are not adapted to gas making. To correct this impression I send you the following statement. The Aubin Gas Works are now arranged to make gas from the above tar and hard wood. From 40 gallons of the one and 1,800 lbs. of the other, they make (in ordinary operations as now used by many village gas companies), 12,000 feet of rich gas. Much of this great yield of course, comes from the wood ; but as the charcoal is worth what the wood costs, the entire yield is justly claimed from the tar. When I add that so exhaustive a process prevents clogging of either pipes or retorts, it is evident that whatever may be the objections to the use of petroleum and its distillates in coal and rosin gas-works, they apply to the works and not to the oils ; which when treated according to their conditions, are the richest and cheapest gas-making materials known.

H. Q. HAWLEY.

Albany, N. Y., Oct. 2, 1863.

How to Conquer Belligerent Bees.

A correspondent sends us the following remedy for pugnacious bees. It would seem to be effective :—

MESSRS. EDITORS :—In your issue of 26th September you copy an extract from the *American Stock Journal*, entitled "Bees," giving a remedy to stop them from robbing each other of their honey, all of which may be very good, in the absence of a better method. But having positive knowledge of a much quicker and simpler plan, I beg to lay it before your readers :—

When it is discovered that two swarms of bees are at war with each other, by turning up the hive containing the attacking bees, thrusting a stick up into the honey, and fracturing the comb, you will at once stop all further aggression, and set the bees repairing the damage done to their own empire, instead of trying to conquer another. G. B. TURRELL.

INVENTIONS AND DISCOVERIES ABROAD.

Purifying Gas With Animal Charcoal.—The following interesting extracts are from a communication to the *Journal of Gas Lighting* (London), by George Smedley, of the Sleaford Gas Works. He says :—"Being engaged (with the assistance of another person) in manufacturing manures from the refuse of the works, we made use of animal carbon as a vehicle, and, on one occasion I had some gas-liquor filtered through a small quantity of the same, when I discovered that, after filtration, the liquor was deprived of nearly the whole of its ammonia. I repeated the operation several times, and each time obtained the same result. Then came the thought—I have neither scrubber nor washer ; here is a material that has an affinity for ammonia in a liquid form ; why not in a gaseous one? Try it. I did so, by filling one tray in each purifier with the carbon. On the following days I applied the turmeric test ; and lo ! the old nuisance had vanished. I afterward made a small purifier, charged it with carbon, and, on testing the gas with the crude apparatus at my disposal, discovered it had the power of intercepting sulphuretted hydrogen as well as ammonia, but only a small per centage of carbonic acid. Further, I believe gas purified by animal carbon, retains a greater per centage of hydrocarbons than by either lime or oxide of iron. I must confess to you that I have not the means of satisfying myself on these points ; and shall only be too glad if any one in the gas world would solve these questions for me. My only idea at present is that it may be useful on small works where no means are provided of getting rid of the ammonia, by using it for that purpose, and afterward disposing of it at a profit. As the great question with us all is to have our gas as pure as possible, at the smallest cost, I submit this to you with the view that some one may take it up."

Transferring Photographic Pictures to Porcelain and Glass.—The *Photographic News* contains an interesting article on this subject, the inventor of the process being M. Grume, chemist, in Berlin, Prussia. The mode of conducting the operations is described as follows :—"The paper (resembling ordinary albumenized) is silvered as usual, but very much over-printed from the negative ; in fact, till the lights are quite gone, and the print appears lost. It is then washed, to free it from silver, and toned, and then rinsed. While rinsing, the print may be observed to be covered with blisters. These gradually increase in size until finally the delicate film of gelatine upon which the picture is splits off and floats into the water. It is then very carefully placed in hypo-sulphate of soda and then well washed—every washing appearing to render it more tough, till at last it may be handled with impunity. The glass, or porcelain, upon which it is to be placed is then passed under the film, and both lifted out of the water together. When dry it is trimmed and covered with transparent hard varnish. We have also received from Messrs. Harvey, Reynolds, & Fowler, a sample of paper for producing these pictures. The instructions they forward contain one or two additional hints. Excite the paper as for albumenized paper. Dry. Print *very* deeply, you can scarcely print too deep. Tone as albumenized paper ; more care will be required as the prints are over-printed, and the changes of tone are not so readily observed. Wash in water. A film now begins to leave the paper. Pass into the hypo-bath one part in five. The film now entirely separates from the paper, and the paper must be removed. Let the film remain in the hypo about ten minutes, and then carefully and thoroughly wash in water. The film is now very elastic. To transfer this film to any surface, clean the surface, and bring it under the film which is floating on pure water. Raise both out of the water together, pull the film into the desired position on the object, and let it dry. Then varnish with a clear varnish. If the film should not adhere as closely as desired on round surfaces, wash it (without removing it from the object) with a mixture of 1 part acetic acid 32°, and 6 of water. As soon as it becomes elastic, wash with water, and it will adhere well. As the manipulations thus described seem to present some difficulties, we were anxious, prior to bringing the process before our readers, to put it into practice. We have accordingly exposed half-a-dozen pictures and transferred them according to instructions. We have succeeded beyond our expectations, and have obtained, at the first attempt, some very pleasing transfers. The paper was excited on a sixty-grain bath, and a couple of pieces exposed under a portrait negative, until the highest lights were of a lavender tint. This we subsequently found was not quite deep enough. The prints were washed and toned as usual, reaching a deep purple in the gold bath, which was one made after Parkinson's formula. On being transferred to a dish of water, and washed well, we did not observe either blistering or entire separation of the film as expected. We then transferred them to the hypo bath, and allowed them to remain a quarter of an hour. A slight blistering was now apparent, which increased in the subsequent wash of water. But as the separation did not take place so speedily as we anticipated it, we added a trace of carbonate of soda to the water, and in a few minutes we saw the delicate transparent film separated from the paper, and floating in the water. After rinsing, we placed a piece of white enamel glass underneath the floating film, and by a little careful management lifted it from the water uninjured, and stretched flat upon the glass, where it dried, smooth, bright, and firm. We now exposed a couple more, and printed until the image was completely buried ; after which, before toning, we trimmed the print to the shape we desired, as we found it was a difficult thing to shape the film when once detached from the paper. We toned this time in a bath containing a little carbonate of soda, and we observed in the subsequent rinsing that the blisters began to rise ; these increased in the hypo bath, and in the course of the subsequent washings, the film readily separated and floated away from the paper. A subsequent couple were toned in the lime bath, washed, and fixed. These also separated in the subsequent washing without any trouble ; but a longer time was necessary, some hours elapsing before the film of albumen was quite detached. The attenuated film, as delicate as the wing of the smallest fly, at first sight seems quite unmanageable, curling, twisting, and folding itself with the slightest disturbance of the water ; and if the object on which it is to be placed be brought under it, and both lifted out of the water without proper precaution, it will probably be found to have run up together into a shapeless mass, apparently beyond remedy. If it be carefully returned to the water, the probability is that it will gradually float straight out again, and present itself quite uninjured. A little care and patience will be required. The variety of ornamental purposes for such transfers will readily suggest themselves. When transferred to plain white enamel glass, the pictures acquire not only a beauty as transparencies, but also as positives, which they did not possess before. The pure white and fine surface seems to impart a wondrous charm of delicacy and brilliancy altogether unexpected, which, for locket and brooch portraits, will possess especial value. It is probable that the film so transferred to ivory will be of value to the miniature painter. As ornaments for vases of opal glass, &c., many very beautiful effects may be produced. In the art of diaphanie, and as an adjunct to the now fashionable art of decalcomanie, it will probably be found useful ; and in a variety of ways which do not now occur to us. At present, the only protection is a hard varnish, but it is possible that by the use of an enamel powder fusing at a low temperature, a vitreous surface might be secured."

Paint for Coal Tar Colors.—A patent has been granted to B. Dupy and Antoine Vibert, of Lyons, France, for making pigments to be employed in oil painting from the colors of coal tar, which have hitherto been chiefly used for dyeing silk and woolen fabrics. For obtaining cakes of red, blue, and violet, 15 grammes of white soap are used, dissolved in 100 grammes of hot water, and there is then mixed with the solution 6 decigrammes of color, previously dissolved in methylitic alcohol, or other solvent. To this mixture is added 25 grammes of alumina, in a gelatinous state, and the mixture is then filtered and dried. These proportions may be varied at discretion ; for, instead of 6 decigrammes of color, a larger quantity may be used, in order to have a greater depth of color. Instead of white soap, glycerine and soaps made from oils or grease derived from animal matters may be employed ; and, instead of alumina, sulphate of barytes or other metallic or earthy oxide