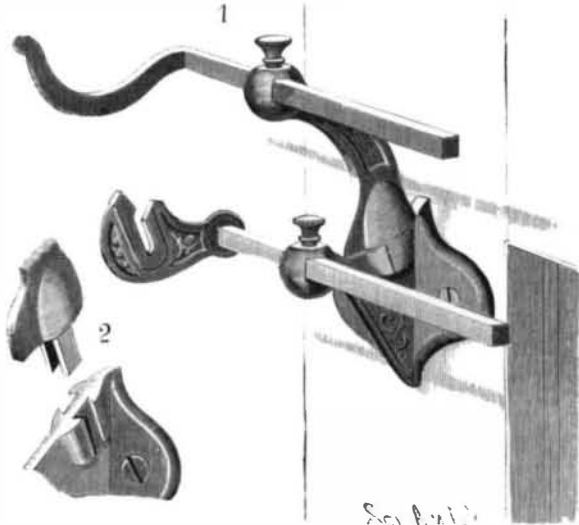


CURTAIN OR SHADE FIXTURE.

The handy contrivance shown in the accompanying cut has recently been patented by Mr. Oliver H. P. G. Spencer, of Mount Carmel, Illinois. The object of the invention is to provide a fixture consisting of two separable brackets, one for supporting the shade roller and the other for supporting a curtain pole, and to arrange the brackets so that the curtain will fall outside and clear of the shade roller. The device also makes it possible to utilize a roller or pole of greater or less width than the window, without cutting or building up the former. The fixture consists of four brackets, two for each side of the window, the lower



SPENCER'S CURTAIN OR SHADE FIXTURE.

bracket being screwed to the window frame and the upper bracket being slidably adjusted on the projecting web of the lower bracket by means of two tongues, engaging corresponding grooves which are provided for the purpose. The projecting web of the lower bracket terminates in a knob, which is provided with a thumb screw and is perforated with a square horizontal hole, in which a rod, which carries at its end a curtain fixture adapted to receive a trunnion of the curtain roller, is fitted to slide horizontally. As each bracket on each side of the window is similarly furnished, it is evident that any length of shade may be used, the curtain fixtures being adjusted accordingly in the brackets. The upper bracket is similarly provided with a perforated knob and a thumb screw, the rod which it carries being provided with semicircular hangers, adapted to receive the curtain rod. These brackets curve upward and outward sufficiently to carry the curtain rod entirely clear of the shade roller.

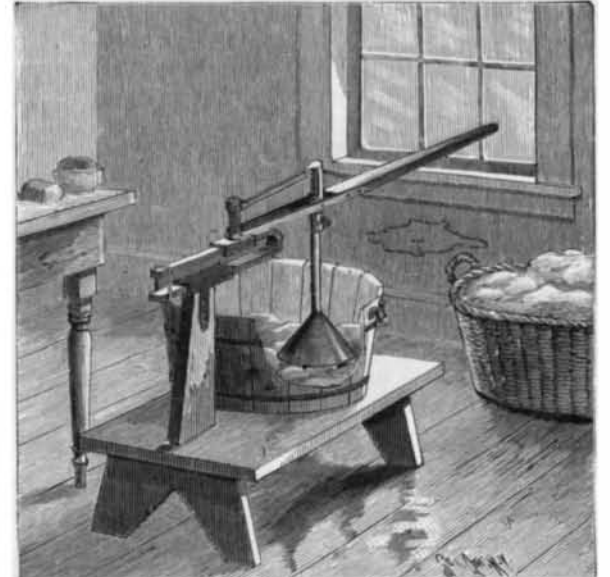
Tattooing by the Maori Race.

Major Gen. Robley is the author of a singularly curious book, "Moko; or, Maori Tattooing." The New Zealand war of 1864-66, in which the author served, gave him his opportunity of studying on the spot that now almost extinct art. The expression, a well chiseled face, meant one thing to a Christian sculptor and another to a Maori decorator. The work contains more than 150 illustrations of designs and tattooed heads. There is no denying the fact that the Maoris could appreciate the beauty of lines and curves. One witnessing the really striking examples of their architectural ornamentation exhibited in South Kensington cannot but regret that they did not work less upon the human skin and more upon some other material. In Gen. Robley's book, which is to be a two guinea quarto, beautifully printed, the history of the art is sketched and the various processes explained. The second section of the book deals with preserved heads, many of

which, dating from 1770, are kept in European museums. It seems there are few, if any, such heads later than 1831, "when the traffic in Maori heads ceased." An illustration entitled "Preserved Heads of Maori Warriors Arrayed in Robes and Displayed by their Conquerors," is singularly lifelike. It betrays at least a rudimentary sense of statuesque drapery.

IMPROVED WASHING MACHINE.

Some improvements in the method of mounting the plungers of washing machines have been designed and patented by Mr. William Powe, of 1327 Richard Street, Vancouver, British Columbia, Dominion of Canada. By reference to the accompanying engraving, it will be seen that one arm of a U-shaped bar is rigidly secured in a casing, mounted at the top of a standard, which is secured on the bench, as shown. The ends of both arms of the bar are secured by a link which is seated in notches formed on said ends. Freely movable on the upper arm of the bar is an angular sleeve, carrying a vertical post, on which a sleeve is rotatably mounted. The lever of the washing machine comprises a handle and two parallel bars, whose further ends are pivoted to the lower end of the last mentioned sleeve. The shaft of the plunger is provided with a sleeve which is pivoted at its center to the parallel bars of the horizontal lever, and at its upper end to one end of a parallel link, the opposite end of which is pivotally connected to the top of the rotatable sleeve, on the vertical post before mentioned. The plunger is of the common funnel shape. By means of this construction the plunger will be capable of a universal movement, and, moreover, its support is independent of the tub, so that the latter may be taken from the bench, without interfering with the plunger and its supporting mechanism.



POWE'S IMPROVED WASHING MACHINE.

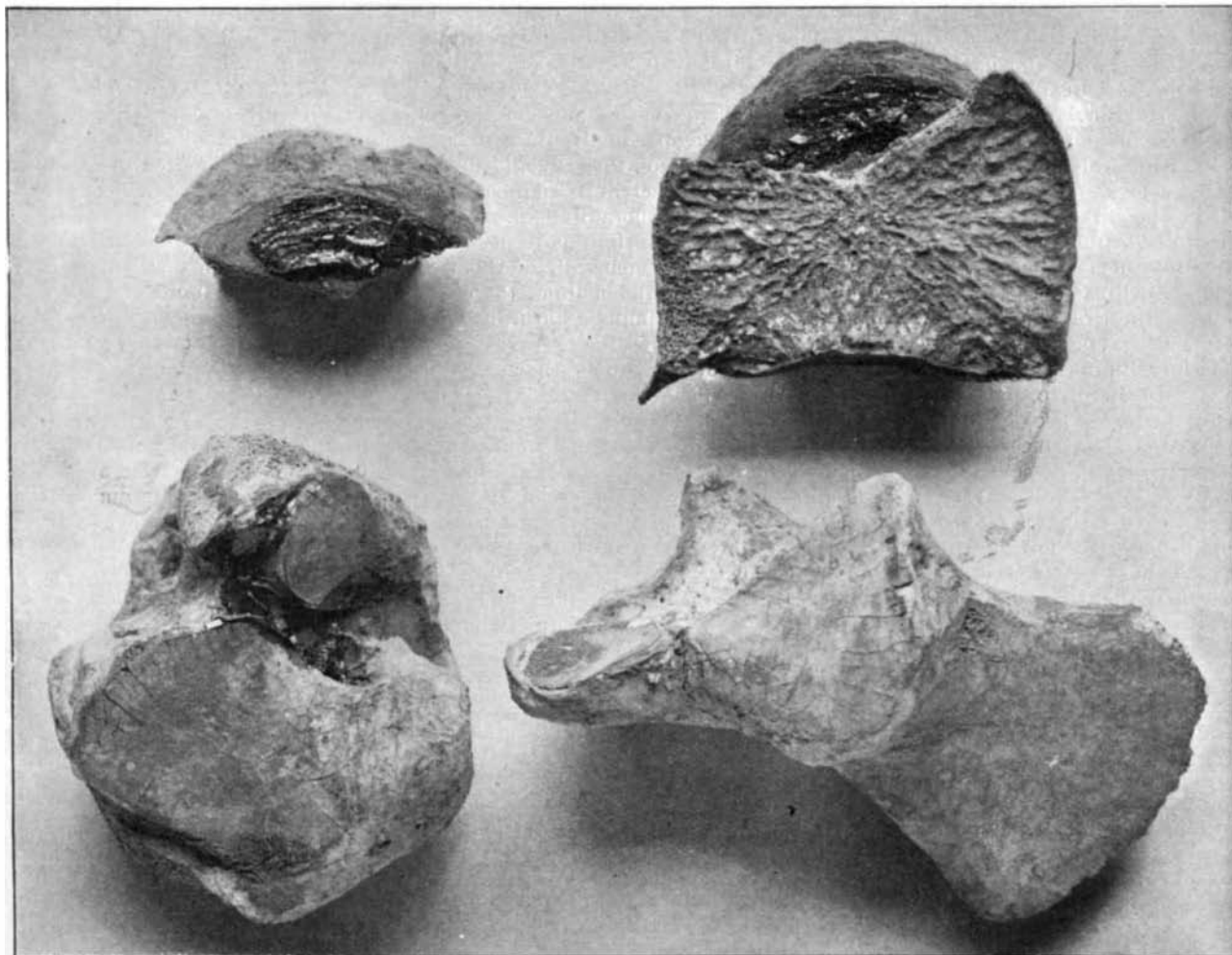
CAVE EXPLORATION IN THE EASTERN UNITED STATES.

BY HENRY C. MERCER.

To learn that the remains of Pleistocene man have been abundantly found in the caves of Europe, that equally significant remains of later savage, barbarous and civilized peoples have been similarly discovered in the caves of Europe, Asia and Africa, and that the remains of the Indian and the recent white man have been found in caverns in North America, warrants the supposition, nowhere disallowed by past investigation, and valuable as an hypothesis, that primitive peoples generally throughout the world have left traces of their presence upon the floors of accessible caves. In the subterranean floor deposits of the new world, therefore, we may suppose that the problematic existence of Pleistocene man might be soonest and easiest demonstrated, while with hardly less ground we may urge as valuable testimony in the American region the absence of such remains in significant underground shelters. Not unreasonably such absence, occurring invariably at these immemorial halting places of men and ani-

effort to eliminate, through the investigation of significant caves, one region after another from the field of search, has sought to narrow the area of possible discovery from the point of view explained. Having shown on the one hand that certain caverns like the fissure at Port Kennedy (right bank of Schuylkill River, three miles below mouth of Perkiomen Creek, Montgomery County, Pa.), containing in large quantity the remains of Pleistocene animals without relics of man, are geologically ancient, on the other hand a fact of much significance has been demonstrated for the first time, namely, that a considerable number of other caves are modern, since their floors, well supplied with the first refuse of Indians and later white men, below which remains of geologically older peoples would not have been lacking in Europe, have failed to reveal any relic of Pleistocene man.

In these several instances the geologically modern remains (human) and the geologically ancient remains (animal) have lain apart in distinct caves, and hence less available for comparative study, but the recent expedition to Tennessee, resulting in the examination of three caves in which the old and new deposits lay in juxtaposition, has enabled us to push the question farther by studying the relation between the ancient and modern strata where, at their point of contact, it was most significant. More broken and scattered even than at the remarkable tomb of extinct animals at Port Kennedy were the remains of the tapir, peccary, bear, and small fossil rodentia at Zirkel's Cave (left bank of Dumpling Creek, about five miles above its mouth in French Broad River, Jefferson County, Tennessee), visited by Professor Cope in 1869. Dislocated as before after the flesh had rotted from the bones, crushed by a force which had split into fragments the hard teeth, the remains had found their way into a mass of clay mixed with lime, which at one time filled the cave. Hardened finally into breccia not easily broken with the pickax, this bone-bearing earth had disappeared at many



Bones of the fossil sloth (*Megalonyx*), astragalus calcaneum and epiphysis of vertebra fresh in appearance and with remains of attached articular cartilages found associated with the refuse of porcupines and cave rats in a dry passage 900 feet inward from the entrance of Big Bone Cave, Van Buren County, Tennessee, May, 1896. Two-thirds natural size.

BONES OF THE FOSSIL SLOTH.

points to make room for a deposit of cave heart containing the remains of the rattlesnake, woodchuck, opossum, rabbit, and cave rat, and it is the important relation of this latter modern earth, with its bits of mica and Indian pottery, to the older breccia that will constitute the material for a final report.

Previous examination, in 1893, at the Lookout Cave (left bank of the Tennessee River, one quarter of a mile below Chattanooga Creek, Hamilton County, Tennessee), had revealed the bones of the tapir and mylodon in the lowermost zone of a floor deposit of Indian refuse, and upon the recent expedition the cave earth with its "culture layer" was entirely removed for 58 feet inward from the entrance to settle beyond doubt the relation of these fossils to the Indian remains resting upon them. At this significant spot, where again the Pleistocene and recent deposits lay in contact, and where the specimens found were labeled according to their position, whether from the black (modern) earth above or the yellow (ancient) earth below, a completed examination should decide whether man had or had not encountered the tapir and mylodon in the Valley of the Tennessee.

After a visit to "Indian Cave" on the Holston River, Carroll's Cave, and the Copperas and Bone Caves, near Tullahoma and Manchester, Tennessee, a new set of conditions was presented at Big Bone Cave (one mile from left bank of Caney Fork and about two miles above its mouth in Rocky River, Van Buren County, Tennessee).* There the bones of the gigantic fossil sloth (megalonyx), still retaining their cartilages, were exhumed from a dry deposit of the refuse of porcupines and cave rats, mingled with fragments of reeds used as torches by Indians in a gallery 900 feet from the entrance, thus presenting us in the final summing up of this strange evidence a new notion of the relation of the modern Indian to this extinct

Valley of Tennessee, at a height of about 600 to 700 feet above the sea and within earlier reach of a overwhelming ocean in Champlain time, and again at a third cave, which, 300 feet higher on the continental floor, and looking westward from the slopes of the Cumberland table land, stands for that part of the Appalachian region whither animals and man (if he existed) might have found convenient refuge when lower areas sunk, as is alleged, beneath the level of the invading waters.

PREPARING OLD WOOLEN RAGS FOR SHODDY CLOTHING.

Shoddy consists of old woolen rags and shreds of stockings, flannels, and other soft worsted fabrics torn

each, the stock costing, if old and dirty, from 3 to 5 cents per pound; if of good quality, about from 8 to 10 cents per pound. When the wool is cleaned and in good order, it will sell from about 14 to 24 cents per pound. The cloth and rags are picked and sorted over by women and girls of different nationalities, such as Italians, Poles, Russians, etc. The material is placed upon tables for that purpose, the women picking out each rag and shredd, carefully examining the color and quality. The pieces of cloth are then put into separate boxes, according to the color and quality of the material. The boxes are made of wood and are about 4 feet in height and about 18 inches square, and will hold about 50 poundseach. Each hand can sort about 90 pounds daily. After the stock is sorted it requires cleaning to free the material of dirt. This is performed by passing the stock through what is called a duster. This apparatus is a square boxlike structure, inside of which is a revolving wheel made of wood about 4 feet in diameter, containing four paddles, the blades of which are about 4 feet in length and about 8 inches in width. The material, to the amount of about 50 pounds, is placed in the apparatus; the paddles, which revolve at the rate of about 300 revolutions per minute, striking the rags and throwing them against the sides of the structure, which forces out the dirt, the dust being carried off at the top by means of a two-foot blower. The dusting operation takes about one minute. The stock, according to the quality and color, is then put into bins holding about 1,000 pounds each, ready for packing into bales. Where the stock is composed of old clothing or any material containing seams or patches, it is necessary to cut them out, so that the cotton can be burned out. The seams are cut out by women and girls with shears and knives, the operation for each suit taking about 10 minutes. The strips of cloth are then dusted and the cotton in the



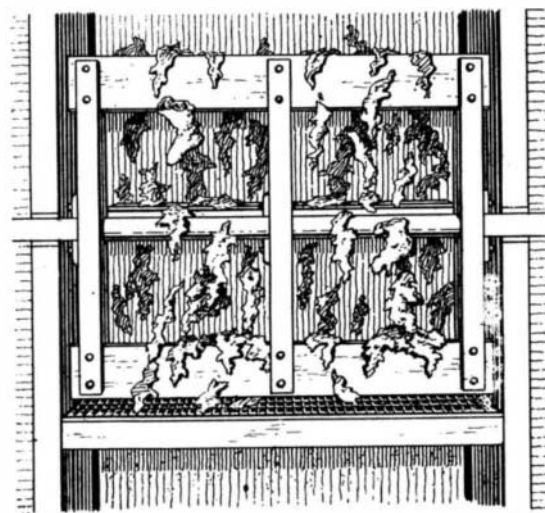
CUTTING OUT SEAMS FROM CLOTHING



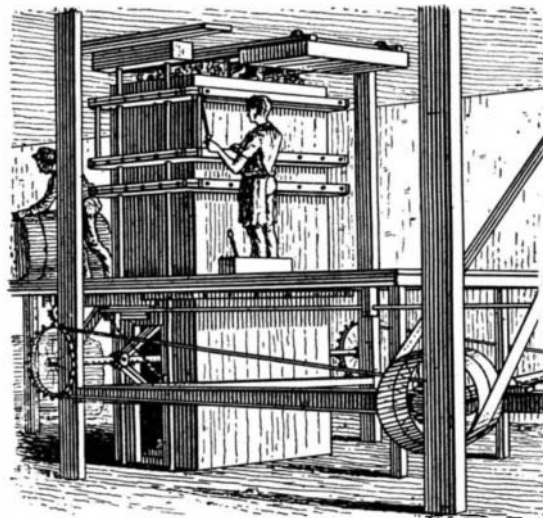
SORTING OUT DIFFERENT COLORED RAGS.



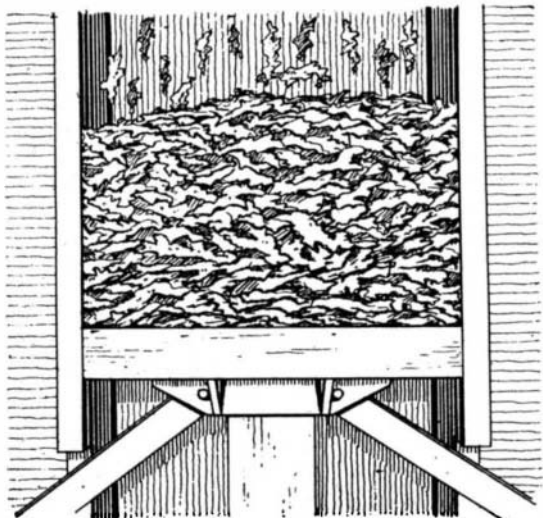
DUSTING RAGS



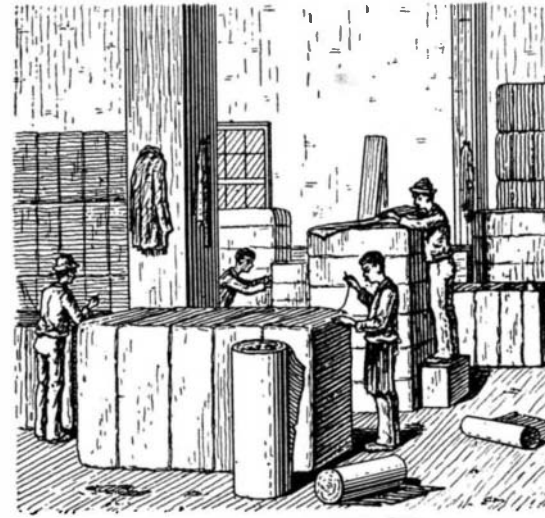
INTERIOR OF DUSTER



PRESSING RAGS INTO BALES



INTERIOR OF PRESS



SEWING UP BALES.

PREPARING OLD WOOLEN RAGS FOR SHODDY CLOTHING.

animal, whose remains outnumber all its fossil contemporaries at Port Kennedy.

Thanks are due to Dr. William Pepper, to the board of managers and to Professor E. D. Cope, for their kind co-operation in the expedition thus finished, which has presented the museum with the specimens now under examination. These, if not attractive, are important. For paleontology they mark in the bone breccia of Zirke's Cave a distinct stage in the Pleistocene series, while for anthropology they represent data which account for the presence of man together with the bones of the extinct megalonyx. They explain the relics of savages and the remains of Pleistocene mammals at two caves situated in the Eastern

and reduced to such fragments as can be made by the operation. A similar preparation, called "mungo" or "mingo," is made in the same manner from rags and clippings of milled woolen cloth, being divided into new mungo from tailors' waste and old mungo from rags of all degrees of degradation. Where cotton and wool have been woven together into cloth, the former is burned out by treating the material with a solution of sulphuric acid, and heating it in a stove, the acid attacking and charring the cotton and leaving the wool unharmed. Shoddy cannot be used without a certain amount of natural length wool, usually about one-third being used in spinning shoddy yarn.

Large quantities of old clothes and rags of every description are imported into this country from England, Germany and France. The material comes here packed up tightly in bales weighing from 500 to 1,000 pounds

seams burned out with sulphuric acid, as stated above. The rags, when sold, are then pressed into bales weighing about 700 pounds each. The rags are thrown or dumped down into a boxlike structure having a movable bottom, which is raised by means of four movable iron arms. These arms, when in position to raise the bottom of the press, are diamond-shaped, the two upper ends of the upper arms being hinged to the press bottom and the two lower arms hinged in the same manner to the flooring below. The central ends of the arms are connected to a horizontal spiral screw, which passes across the center of the diamond, which, when set in motion, cause the arms to draw inward, straightening them out and causing the press bottom to move upward, which in turn presses the rags tightly together against a heavy movable wooden frame above, which is moved over the rags when the press is filled. The arms raise the bottom up about

* This cave was explored by Mr. Henry C. Mercer, curator of the section of American and prehistoric archeology, Museum of Science and Art, University of Pennsylvania, at the suggestion of Prof. James M. Safford, of Nashville, Tenn.