lyn, Newark, and the neighboring towns and villages, established a benevolent bureau for the relief of their sick and disabled employees. Physicians are appointed, whose duty it is to attend the sick members of the bureau, and a record is kept of all cases of sickness and death which occur. The number of deaths which took place among 960 brewery workmen in five years was 36, — an average of 7.2 per annum, or a death-rate per 1,000 of 7.5. The United States census gives the rate per 1,000 of the urban population of the same ages, as 12.5; or, in other words, the risks incurred in insuring the lives of habitual beer-drinkers are less by forty per cent than the ordinary risks of such transactions. The death-rate per 1,000 in the regular army of the United States in 1885 was 10.9; so that, even as compared with the soldier in peace time, we find that the brewery workmen have a great advantage in point of low rate of mortality.

Mr. Thomann gives us a number of interesting facts connected with the breweries and the workmen engaged therein. In every brewery is a room, called the 'Sternenwirth,' in which beer is constantly on tap, to be used by every one at pleasure and without cost. Every one drinks as much beer as he thirsts for, without asking, or being asked any questions as to his right to do so. The average daily consumption of malt-liquors for each individual is 25.73 glasses, or about ten pints. In the statistics which are given we find that a considerable number of the men consume forty and fifty glasses a day, and two are reported as drinking, on an average, seventy glasses daily. With a view to ascertaining, in the most reliable manner possible, the effects of the use of malt-liquors, the physicians of the benevolent bureau examined one thousand of the brewery workmen as to general state of health, condition of liver, condition of kidneys, and condition of heart. In addition to this, they weighed and measured each man, and tested his strength by the dynamometer. These examinations showed that there were, in all, twenty-five men whose physical condition was in some respect defective; and the remaining nine hundred and seventy-five enjoyed exceptionally good health, and were of splendid physique. There were 300 men who had been engaged in brewing from five to ten years, 189 from ten to fifteen, 122 from fifteen to twenty, and 46 more than twenty-five years. One special case referred to is that of a man fifty-six years of age, uninterruptedly at work in breweries during thirty-two years, who drank beer throughout this time at the rate of fifty glasses per day, yet has never been sick, and to-day is perfectly healthy, vigorous, and active.

The statistics are, to say the least, very surprising, and, unless refuted, will result in modifying to a considerable degree the generally accepted views of the influence of malt-liquors on the health of those who drink them habitually. Mr. Thomann has boldly thrown down the gauntlet, and we shall watch with interest to see who will take it up.

THE ABORIGINAL MILLER.

DOUBTLESS it has occurred to many archeologists that the stone arrow-heads, knife-blades, pestles, axes, etc., in their collections are examples of but a small part of the articles once used by prehistoric peoples, the more perishable articles of wood, hide, or bone having long since disappeared. A study of the present arts of savage life — the surest safeguard in speculating about the arts of ancient times — proves this view to be correct, for the number and variety of implements of animal and vegetal origin now used in the camps of savage tribes greatly exceed those of stone. In the present article the implements of the aboriginal miller are introduced in illustration of what has been said above.

The tribes from which the illustrations are drawn are, the Hupa, of northern California (1), from the collection of Lieut. P. H. Ray, U.S.A.; the Pima and the Yuma stock, around the mouth of the Colorado River (2), from the collections of Edward Palmer; the tribes formerly east of the Mississippi (3); and the Utes of the great interior basin (4), from the collections of Major Powell and other officers; with glimpses of the Sioux and the Pueblo miller. It must be remembered that the active agent in all the varied operations of milling, among the savage tribes, — as well as of tanning, shoemaking, tailoring, weaving, the manufacture of pottery, and other peaceful industries, — is always a woman.

In describing the illustrations, I shall first refer to the sketches in plate 1. The Hupa, like all other primitive millers, has to gather the grist before she grinds it. For this purpose she uses a light but strong carrying-basket (fig. 5), made with warp of osier, and weft of the same material split and twined. A soft buckskin strap surrounds the basket, and passes around her forehead, which is protected by an ingenious pad (fig. 7). Her basket being filled with acorns, she trudges to her camp, and deposits them in a granary of closely woven, twined basketry (fig. 6). Her mill is both novel and ingenious, consisting of a pestle, a hopper, a mortar-stone, and a receiving basket-tray (fig. 9). The pestle is like its congeners all the world over; and the hopper has no bottom, its lower margin merely resting upon the mortar-

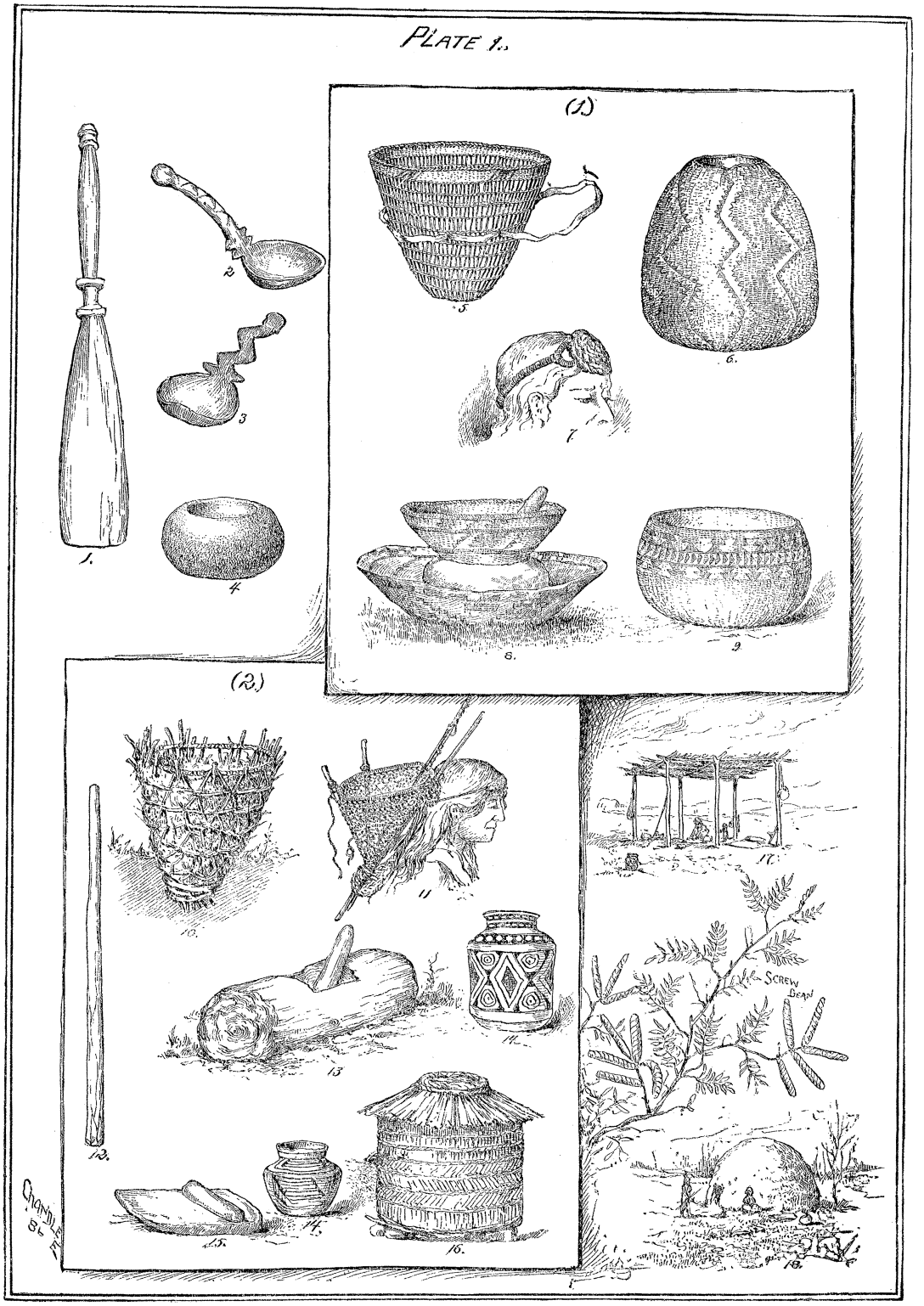
PLATE I.
(1.)
(2.)
1.
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13.
14.
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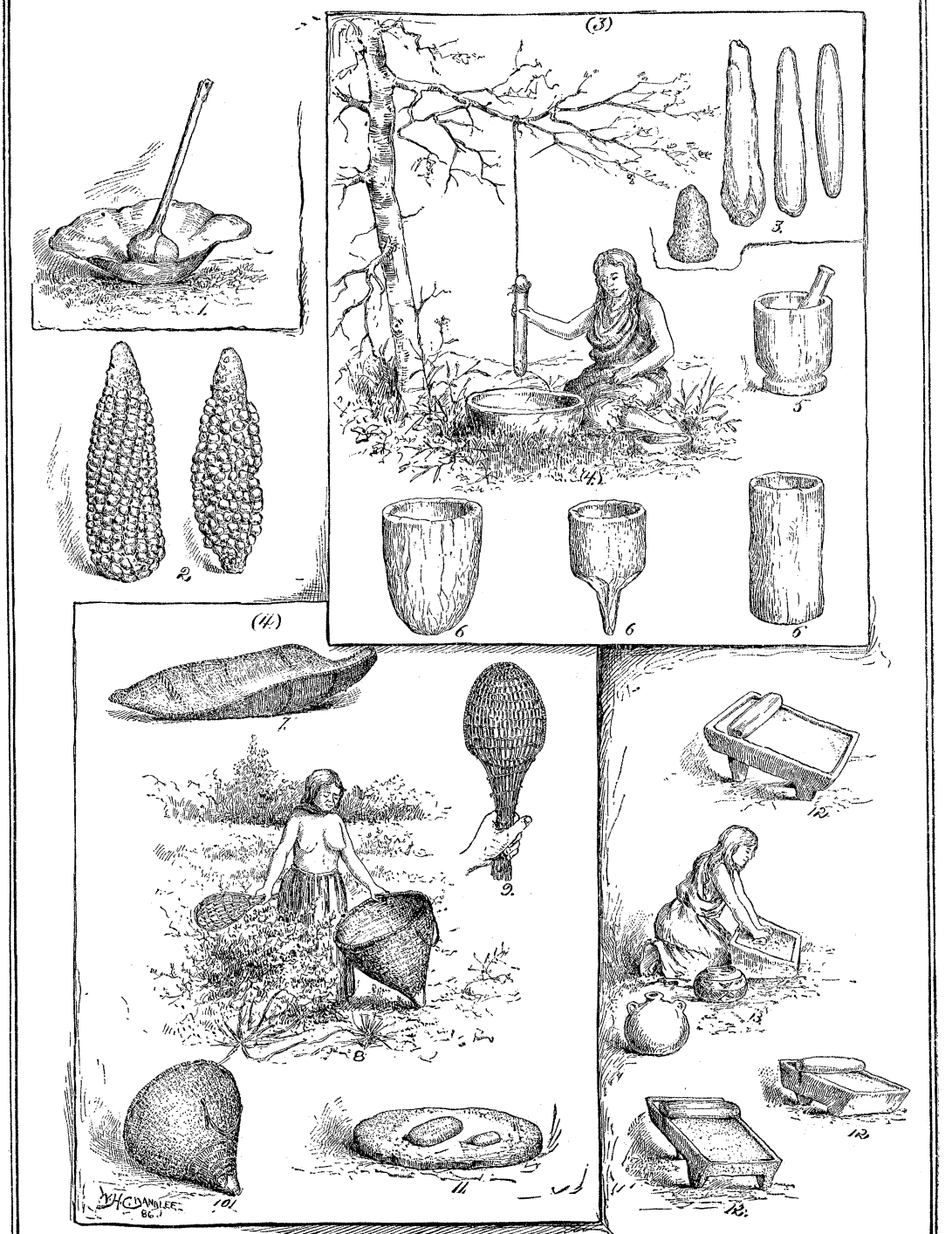
17.
18.
SCREW BEAN

PLATE 2.



stone, to which it may or may not be united by means of pitch. Acorns are poured into this and hulled, and afterward reduced to meal. In those instances where the hopper is not fastened to the stone, the hulls remain above, and the powdered acorns sift down into the basket-tray. Water-tight baskets for 'stone-boiling' mush and for other culinary operations are made by this tribe. The mush-paddle of wood (fig. 1), the ladles of horn (figs. 2, 3), and the small stone paint-mortar (fig. 4), must not be overlooked.

The Pima or Cocopa miller (2) has for her outfit a carrying-net, a bean-crusher, a trough-mortar, a granary, and a 'metate,' besides a great variety of pottery, which the Hupa does not make. It may be mentioned here that none of the great Tinné stock, to which the Kutchin, Athapascan, Apache, and Navajo belong, seem to have made pottery at any time. The bean-crusher (fig. 10) is a cone of coarse strong wattling set in the ground. It is carried to the bean-trees, and in it the pods are broken up by means of a long wooden pestle (fig. 12), so that the miller can get a heavier load into her net. In other words, her 'first process' is crushing the pods in the field. The carrying-net of these tribes is most ingenious, consisting of four frame-sticks, a hooped rim, and a net woven in a very curious and difficult stitch. Besides the net, there is a back-pad made of palm-leaf, a padded head-band, and a forked rest-stick, which the harvester-miller uses as a cane when carrying her load. The gathered beans are stored in beehive granaries (fig. 16) of various patterns, made of straw sewed in a continuous coil by means of tough bark. The 'second process' is the reduction of the broken pods to coarse meal in a wooden trough or mortar (fig. 13). The last process is that of the 'metate,' or mealing-slab (fig. 15). The jars for holding the meal (fig. 14) are cream-colored, decorated in black. In summer the miller works in an open shed (fig. 17), but in cooler weather she transfers the scene of her operations to a mud-covered, wattled hut (fig. 18).

Let us now turn to plate 2. In the eastern part of the United States are found multitudes of well-wrought pestles, such as those shown in fig. 3; but there is a scarcity of good mortars from the same section. This scarcity can be accounted for by the fact that the mortars were perishable, being made of wood. It must not be forgotten that this is the region of maize (fig. 2) and hominy, and until very recently the hominy-logs or wooden mortars (fig. 4) survived on our southern plantations. Even at the present day it would not be difficult to find them in use in the more remote regions. Mr. Schoolcraft gives an illustration (fig. 4), showing how the ingenious miller has invoked the elasticity of a limb to lighten her task, and it would be interesting to know whether the miller or the bowyer was the first to make use of this labor-saving device.

The Sioux Indians formerly dried buffalo meat until it could be reduced to meal or pemmican. The outfit of the Sioux miller then consisted of a bowl made of the toughest dried rawhide, and a maul (fig. 1). The stone head of this maul was bound to the slender wooden handle by means of a hood of rawhide, put on green and allowed to shrink. The Ute miller, living in the deserts of the great interior basin, has to utilize every kind of seed that will sustain life. Her set of tools includes a conical carrying-basket (figs. 8, 10), a gathering-wand (fig. 9), a fanning and roasting tray (fig. 7), and a 'metate,' or mealing slab (fig. 11). These mealing-slabs (figs. 11, 12, 13) are common in tropical and sub-tropical America. The conical basket is closely woven, with a buckskin bottom, and has a soft head-band for the miller's forehead. The gathering-wand is an open-work, spoon-shaped frame of twine basketry, and is used for beating seeds into the carrying-basket, as shown in fig. 8. The fanning and roasting tray is shallow, and shaped like a cream-skimmer. It is used to separate chaff from seeds, or to parch the seeds, which are put into the tray with a hot stone, and the whole deftly shaken together. The parched seeds are afterwards reduced to powder on the mealing-stone.

There is scarcely a tribe or people that does not invoke the services of the miller in some manner. Many tribes use a greater variety of stone implements than do those mentioned, and all tribes have their own separate devices for gathering, storing, and grinding provisions. Take the wood and other perishable substances away from these millers' outfits, and we have left an archeological cabinet. In a general and cautious way, add these articles and attachments of animal and vegetal origin to your collection of ancient milling-tools, and you will have a comprehensive notion of the milling methods in the olden times.

O. T. Mason.

PARIS LETTER.

Two of the many posts formerly held by the eminent zoölogist Henri Milne-Edwards were recently filled by elections at the Academy of sciences and the Sorbonne. Milne-Edwards's successor in the former institution is M. Sappey, who was recently removed from his professorship in the medical school on account of his age. M. Sappey's principal competitor was M. Ranvier, the well-known histologist, who, it must be conceded, ranks higher as a scientist than his more fortunate