

INDUSTRIAL pursuits are a far better characteristic of a people in a low state of development than their habits, which may be purely local or incorrectly interpreted. The simple process of producing fire from its rudest principle of twisting two sticks has had so many different practices superadded to it that it is instructive to note how fixed tribal characters become, even in so small a matter as the elements of fire making. One of the earliest descriptions of the system used by the Hurons and Iroquois is related by Pere Lafitau (1724), in which he says, "they take two pieces of dry cedar wood, then hold one piece firmly down with the knee, and in a cavity which they have made with a beaver tooth or with the point of a knife on the edge of one of these pieces of wood which is flat and a little larger, they insert the other piece which is round and pointed, and they turn and press down with so much rapidity, that the material of the wood, agitated with vehemence, falls off in a rain of fire by means of a crack or little channel which leaps from the cavity over a (slow) match. The latter receives the sparks which fall, and preserves them for a time, from which they can make a large fire by setting it to other materials." In all descriptions, however, many little details are omitted, and it is on them that the adaptability of the uses to the occasion is shown. The drill and the lower piece, which is called the hearth, must be of dry easily inflammable wood, that riddled by worms and soft from incipient decay is the best for the purpose. This was used by the Vestals of old, and is known as the *felicis materia*. Sand is used by the Indians to increase friction. For tinder the dry bark of the *arbor vitæ* is used, frayed and slightly charred. A fungus, known as the puff ball, when dry, also is used for that purpose. The fire sticks are intrusted into the hands of the most skilful fire-maker, who keeps them wrapped up to preserve them from damp. Their effectiveness increases with use and age, a stick and hearth that have been charred by use yield a spark in half the time required for a new apparatus. Captain Bourke records an Apache Indian making a fire in his presence in not quite eight seconds by the watch, and experiments made under his own observation ran all the way from eight to forty-seven seconds. The Iroquois are said to be unique in America and perhaps in the world in making fire with an apparatus called the "pump-drill." This is used by other tribes to pierce stone and shell, but the mechanical difficulties in the way of making fire by its use have been overcome only by the Iroquois. Morgan speaks of it as "an invention of great antiquity." Among the Onandagoes and Tuscaroras when a disease has broken out they say it is because the fire is "old," and they then determine to make a new fire, putting out all the old fires, and selecting two elm logs, on one of which is cut a V shaped notch. In this, tinder of dry slippery elm bark is placed, and the other log is worked back and forth till fire is generated. Sir Daniel Wilson, in his work on