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JOHN M. CLARKE, Director

Museum Bulletin 144

UOIS USES OF MAIZE AND OTHER FOOD PLANTS

BY

ARTHUR C. PARKER

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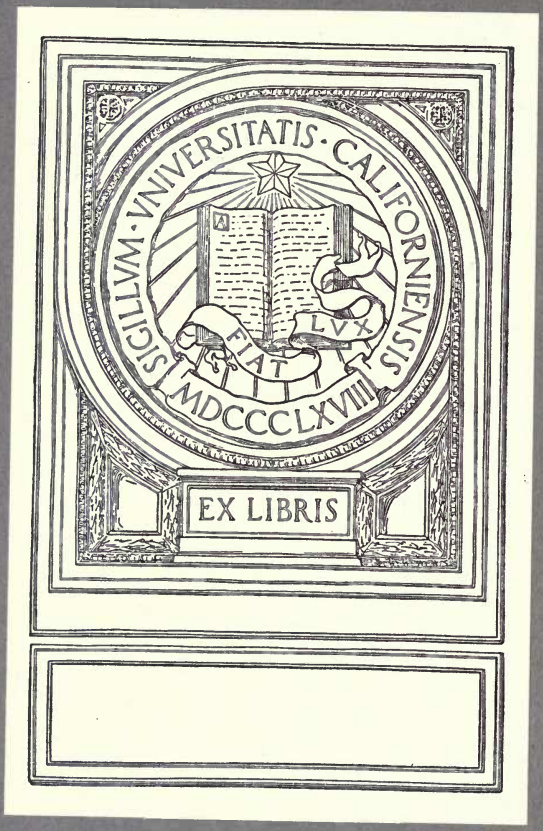
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New York State Education Department

Science Division, September 27, 1910

Hon. Andrew S. Draper LL.D.

Commissioner of Education

SIR: I have the honor to submit herewith for your approval, a manuscript entitled *Iroquois Uses of Maize and Other Food Plants,* which has been prepared by Arthur C. Parker, Archeologist of the State Museum, and to recommend its publication as a museum bulletin.

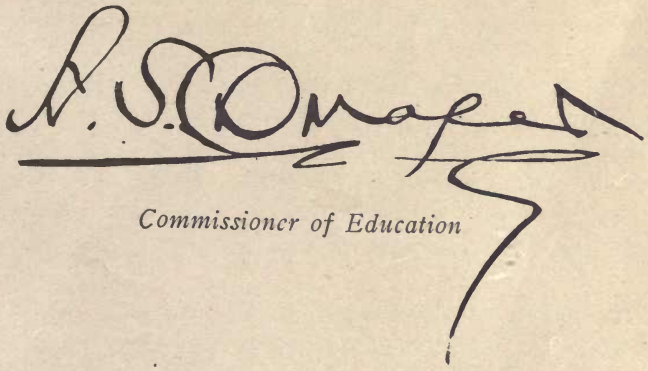
Very respectfully

JOHN M. CLARKE

Director

State of New York
Education Department
COMMISSIONER'S ROOM

Approved for publication Sept. 28, 1910



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IROQUOIS USES OF MAIZE AND OTHER FOOD PLANTS

BY

ARTHUR C. PARKER, *Archeologist*

PREFATORY NOTE

These notes on the preparation and uses of maize and other vegetable foods by the Iroquois have been gathered during a period of 10 years, while the writer has been officially concerned with the archeology and ethnology of the New York Iroquois and their kindred in Canada. They embrace all it has been possible for him to gather from the Iroquois themselves concerning the uses of their favorite food plants. Scores of Indians were questioned and many interesting facts were brought out from almost forgotten recesses of their minds.

The greater part of this treatise is the result of a purely original inquiry. An attempt has been made to cite the records of early explorers and travelers where the case seemed of interest or importance, but no general historical review of the subject is given.[1] The aim is rather to present an ethnological study of the Iroquois uses of food plants. This it is hoped will also have an economic and sociologic value.

Maize played an important part in Iroquois culture and history. Its cultivation on the large scale to which they carried it necessitated permanent settlements, and it was, therefore, an influential factor in

[1] For a general review of the subject of Indian foods consult Thomas. Mound Explorations, Bureau of Ethnology, 1890–91; Carr. Mounds of the Mississippi Valley, Smithsonian Rep't, 1891; Carr. Foods of Certain American Indians, Am. Antiq. Soc. 1895.

determining and fixing their special type of culture. They had ceased to be nomadic hunters when their corn fields and vegetable gardens flourished. Many of the tribes of eastern North America were agriculturalists to an extent hardly realized by those unfamiliar with early records and this is especially true of the Huron-Iroquois family, though it is not to be disputed that the Algonquin tribes of the east and southeast had large fields and raised corn and other vegetables on a large scale.

My principal informants as to names and recipes are the following Iroquois Indians: on the Tonawanda Seneca Reservation, Lyman Johnson, Otto Parker, Peter Sundown; on the Allegany Reservation, Mrs Henry Logan, Mrs Fred Pierce and others; on the Cattaraugus Reservation, Mrs Aurelia Jones Miller, George Dolson Jimerson, Thomas Silverheels, Mrs Frank Patterson, Mrs Emily Tallchief, Mrs Julia Crouse (Aweniyont), Chief and Mrs Edward Cornplanter, Chief and Mrs Delos Big Kettle, John Jake, George Pierce, John Lay jr, Skidmore Lay, Mrs Emily C. Parker (Tuscarora), Mrs Cassie Gordon (Cayuga), Job King, Mrs Naomi Jimeson and many others; on the Onondaga Reservation, Chief and Mrs Baptist Thomas, Marvin Crouse and others; on the Grand River Reservation of the Six Nations, Canada, Albert Hill, Chief and Mrs D. C. Loft, Mr and Mrs Seth Newhouse (all Mohawks), Chief Michael Anthony and Lawson Montour (Delaware), Chief Josiah Hill (Nanticoke), Chief Jacob Johnson, Fred Johnson (Oneida), Chief Gibson (Seneca) and many others, of the Oneida of Muncytown, Ontario, Chief Danford, Elijah Danford, and of the Caughnawaga Mohawk, Mr and Mrs Longfeather (James Hill), Mrs Dibeux, Mrs Saylor and others.

As far as practicable the writer has followed the system of orthography used by the Smithsonian Institution in recording American languages, and especially that employed by Hewett in his *Cosmology*. For certain reasons there are a few minor departures from the system as employed by Hewett but in general there is little difference.

Alphabet and abbreviations

a as in *father, bar;* Germ. *haben*
ā the same sound prolonged
ă as in *what;* Germ. *man*
ä as in *hat, man, ran*
ǟ the same sound prolonged
â as in *law, all;* Fr. o in *or*

ai as in *aisle,* as i in *mine, bind;* Germ. *Hain*
au as ou in *out,* as ow in *how;* Germ. *Haus*
c as sh in *shall;* Germ. sch in *schellen;* Fr. ch in *charmer*
ç as th in *wealth*
d pronounced with the tip of the tongue touching the upper teeth as in enunciating the English th; this is the only sound of d in the language
e as e in *they,* as a in *may;* Fr. *ne*
ĕ as in *met, get, then;* Germ. *denn;* Fr. *sienne*
g as in *gig;* Germ. *geben;* Fr. *gout*
h as in *has, he;* Germ. *haben*
i as in *pique, machine*
ī the same sound prolonged
ĭ as in *pick, pit*
k as in *kick, kin*
n as in *no, nun, not*
ñ as ng in *ring, sing*
o as in *note, boat*
q as ch in Germ. *ich*
s as in *see, sat*
t pronounced with the tip of the tongue on the upper teeth, as in enunciating the English th, this being the only sound of t in the language
u as in *rule;* Germ. *du;* Fr. ou in *doux*
ŭ as in *rut, shut*
w as in *wit, win*
y as in *yes, yet*
dj as j in *judge*
hw as wh in *what*
tc as ch in *church*
^{n} marks nasalized vowels as a^{n}, e^{n}, $ĕ^{n}$, o^{n}, $ă^{n}$, ai^{n}, etc.
‘ indicates an aspiration or soft emission of the breath which is initial or final, thus ‘h, $ĕ^{n}$‘, o‘, etc.
’ marks a sudden closure of the glottis preceding or following a sound, thus ’a, o’, ä’, ă’, etc.
′ marks the accented syllable of a word
th in this system are always pronounced separately

In abbreviating the names of the various languages the following have been used: Mk., Mohawk; Od., Oneida; Onon., Onondaga; Ca., Cayuga, and Sen., Seneca.

Unless otherwise specified the Iroquois names and words used in the body of this paper are all Seneca. The writer is more familiar with this dialect of the Iroquois than the others, and this coupled with the fact that the Seneca are the most conservative of the Iroquois and remember more concerning their ancient usages, it is hoped will justify the employment of that tongue to the exclusion of the others.

In a work of this character one is always tempted to add in full the myths which hover about the subject and to describe the various rites and ceremonies that attend it. These things, interesting as they are, are reserved however for notice in other works where they will be more properly correlated.

ARTHUR C. PARKER

I MAIZE OR INDIAN CORN IN HISTORY

1 **The origin of maize.** From the Greek ζαω meaning to live has come the Latin *zea,* the family name of Zea mays Linn., Indian corn or maize. The term *zea* as applied to the name of maize is highly significant and most appropriate for with the Iroquois as with many other Indian tribes maize was the principal and favorite vegetable food. So important was it to the Iroquois that they called it by a name meaning " our life " or " it sustains us."

That maize is a native American plant there is now no question. The testimony of archeology, history and botany all point to this conclusion. From botanical studies its origin in southern Mexico can be practically demonstrated.[1]

Several early investigators have endeavored to show that Zea mays is not indigenous to America by referring to the corn of Egypt and the Levant.[2] Most of these writers, if not all, have based their premises upon statements by no means unassailable. It is difficult to imagine what advantage is to be derived from creating or fostering misstatements as to the origin of maize but this has been done by several writers.[3] In 1810 Molinari, a European writer, published a work called *Storia d'Incisa* in which there was a reference to ". . . a purse containing a kind of seed of a golden color and partly white, and unknown in the country and brought from Anatolia."[4] This strange seed was supposed to have been given by two crusaders, companions of Boniface III, to the town of Incisa. This reference to the seed " of golden color " caused some discussion at the time and many believed it to be maize, but after much controversy the celebrated *Storia* was found by the Comte de Riant to be a pure forgery, but not until it had been cited widely as proof of the Old World origin of maize.[5] There are many historical references as vague and unreliable as this which nevertheless seemed to have a certain weight.

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[1] For origin and botanical character of maize *see* Harshburger. Botanical Studies, Univ. Pa. and Iowa Agric. Exp. Sta. Bul. 36, 1907. *See also* Brown, P. A. Farmer's Cabinet, v. 2. Albany 1838; Brown, D. J. Amer. Inst. Trans. 1846.

[2] *Cf.* Van der Donck. New Netherlands. Amsterdam 1656. 1:158. Reprint Hist. Soc. Trans. Ser. 2.

[3] Compare the account of Lundy, John P. Zea Mays, as it is Related to the Incipient Civilization of Red Men all the World Over. Numismatic & Antiq. Soc. Phila. 1883.

[4] De Candolle. Origin of Cultivated Plants, p. 388, Internat. Sci. Ser. N. Y. 1885.

[5] Riant. La Charte d'Incisa. 1877. Reprinted from Revue des Questions Historiques.

The names applied to maize during the 16th century in Europe have confused some writers. It was variously called Roman corn, Turkish wheat, Sicilian corn, Spanish corn, Guinea corn, Egyptian corn and Syrian dourra. The people or localities after which the corn was named, however, universally disclaimed all knowledge of its origin and referred it to some other source, and so named it; thus the Turks called it Egyptian corn and the Egyptians always referred to it as Syrian dourra, each in turn disclaiming its origin. Possibly the most widespread name by which maize was known in Europe was Turkish wheat which was the name generally used by the English. The name seems to have been first used by the botanist, Reullins,[1] in 1536, and later, in 1552, Tragus represented a maize plant in his *Stirpium* calling it Frumentum turcicum, but afterward, having read some vague reference to a plant thought to be similar he conceived the idea that it must be a species of Typhia grown in Bactriana. Other writers, however, denied this, Matthiole in 1570, Dodens in 1583 and Camerarius in 1588, all asserting its American origin.[2]

D'Herbelot, the oriental scholar, thought he had discovered maize in the references of the Persian historian, Mourkoud, who lived in the 15th century and who recorded that Rous, son of Japhet, sowed a certain seed on the shores of the Caspian sea.[3] He could not, of course, substantiate his belief but his statements at the time had a certain weight. Candolle[4] cites the finding of an ear of corn in an Egyptian sarcophagus at Thebes by Rifaud but says that the incident was probably the result of a trick played by an Arab imposter.[5] If maize had grown in Egypt, says Candolle, "it would have been connected with religious ideas like all other remarkable plants." He further cites that Ebn Baithar, an Arab physician, who had traveled through all the territory lying between Spain and Persia mentions no plant which may be taken for maize. Maize was so little known as a food plant in India in the 18th century that it was only grown in gardens as an ornamental grass.[6] In China it has been cultivated since the middle of the 17th century[7] although there are attempts to show earlier introduction, which, however, are denied by the best Chinese authorities.

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[1] Reullins. De Natura Stirpium, p. 428. *Cf.* Candolle, p. 339.
[2] Candolle. Origin of Cultivated Plants, p. 389. N. Y. 1885.
[3] *Ibid*, p. 390.
[4] *Ibid.* p. 390.
[5] *See* Reply of President Price to Lundy's Paper *Zea Mays.* Numismatic & Antiq. Soc. Trans. Phila. 1883.
[6] Roxburgh. Flora Indica, III:568.
[7] Candolle. Origin of Cultivated Plants, p. 392.

A review of the subject [1] leads to the fact that there is no authentic reference to maize in the writings of travelers or naturalists prior to the discovery of America by Columbus. Hebrew parchments and Sanscrit scrolls are alike silent. With the opening up of the New World and the discovery of the great staple grain of the western continent, maize cultivation spread with lightning rapidity throughout the eastern hemisphere. It became a definitely known and accurately described food plant.

One early writer,[2] who no doubt had read with interest the early discussions as to the origin of maize says: "Maize was carried from America to Spain and from Spain into other countries of Europe, to the great advantage of the poor, though an author of the present day, would make America indebted to Europe for it, an opinion the most extravagant and improbable which ever entered the human brain."

If the grain had been known before the Columbian epoch it would have spread quite as rapidly as it did subsequently, which is good evidence of its American origin and this origin is no longer disputed by competent authorities.[3] Edward Enfield in his book on maize is so positive that maize is an American plant that he declares that ". . . if any further evidence were wanting on this point it may be found in the impossibility that a grain so nutritious, prolific and valuable, so admirably adapted to the wants of man could have existed in the eastern world before the discovery of America without coming into general use and making itself universally known. Had this cereal existed there at that period it would have made its record too clearly and positively to leave any doubt on the subject." [4]

The researches of Harshburger and others indicate that maize is a development of a Mexican grass known as teosinte (Euchlaena mexicana Schrad.). Maize and teosinte by cross fertilization produce fertile hybrid plants known as Zea canina Watson, or

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[1] *See* Salisbury. History and Chemical Investigation of Corn, p. 8. Albany 1846.

[2] Clavigero. History of Mexico; trans. by Charles Cullen, Lond. 1787. 1:26.

Clavigero in a footnote further states that the name *Grano di Turchia*, by which it (maize) is at present known in Italy, must certainly have been the only reason for Bomares adopting an error, so contrary to the testimony of all writers on America, and the universal belief of nations. The wheat is called by the Spaniards of Europe and America, *maize*, taken from the Haitina language which was spoken in the island Hispaniola or St Domingo."

[3] *Cf.* Beverly. Hist. of Va. Lond. 1722. p. 125.

"They say that they had their corn and beans from the southern Indians, who received their seed from a people who resided still farther south." *Van der Donck, New Netherlands,* (1656). Reprint N. Y. Hist. Soc. Trans. 1:137.

[4] *See* Bailey. Cyclopedia of American Agriculture, 1:404.

as the Mexicans call it, *mais de coyote* (Lupus latrans). Harshburger says that our cultivated maize is of hybrid origin probably starting as a sport of teosinte which then crossed itself with its normal ancestor, producing our cultivated corn.[1] Plants which by hybridizing and cultivation will produce maize are not found outside of Mexico and for this reason, if no other, it would seem conclusive that maize had its origin there. As to the exact locality, Harshburger who has made a special study of the plant and its origin, says that it originated in all probability north of the Isthmus of Tehuantepec, and south of the 22° of north latitude near the ancient seat of the Maya tribes.[2] In this connection it is worthy of notice that nearly all the traditions of the Indians, not pure myths, point to the far southwest as the mother country of the corn plant.

An important proof of the cultivation of maize in America before the Columbian epoch is the fact that the kernels and cobs in a charred state have been found in ancient pits and refuse heaps all over eastern North America. Impressions of the kernels have been taken from Precolumbian mounds and the actual ears and cobs from the storage places of the Pueblos, Cliff Dwellers, Aztecs and Peruvians where time and crumbling ruins had sealed up the stores. No American archeologist doubts the cultivation of maize in America in Precolumbian times. The revelations of his own spade and trowel assert the fact in no uncertain way.

The name *maize* is derived from the Arawak *mahiz*. Columbus found maize growing on the island of Hayti and his mention of it is the first record of that plant. In the *Life of Columbus, By His Son,* under the date of November 5, 1492, is the following note:

> There was a great deal of tilled land some sowed with those roots, a sort of beans and a sort of grain they call maize, which was well tasted, baked, or dried and made into flour.[3]

This is the first historical reference to maize which it is possible to find in any work and the first use of the term maize.[4]

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[1] Harshburger. Contributions from the Botanical Laboratory of the University of Pennsylvania, v. 1, no. 2.

[2] Harshburger. Bailey's Cyclopedia of American Agriculture, 1:399.

[3] Life of Christopher Columbus, By His Son, in Pinkerton's Voyages and Travels. Lond. 1832. 12:38.

[4] Among the first probable references to Indian corn is one by Capt. John De Verazzano, who early in the 16th century coasted along the middle Atlantic coast. In his report to the King of France, under date of 1524, 32 years after the discovery, he said in describing the Indians whom he saw: "Their food is a kind of pulse which there abounds, different in color and size from ours and of a very delicious flavor." In the light of subsequent descriptions by other explorers it seems very probable if not certain that the *pulse* was maize

2 **Importance of maize in the early English colonies.** There is no plant more vitally or more closely interwoven into the history of the New World [1] than maize or Indian corn.[2] At the most critical stages in colonial history corn [3] played an important part. Our Pilgrim fathers and the less hardy cavaliers of Jamestown and Maryland were rescued from starvation more than once when it was hard upon them by foods made from the corn given them by the Indians who had cultivated and harvested it. Had it not been for the corn of the Indians the stories of Jamestown and Plymouth instead of being stirring accounts of perseverence and endurance might have been brief and melancholy tragedies. The settlement and development of the New World would have been delayed for years.[4] History would have been changed, the foothold of the English colonists weakened and another tongue spoken along the Atlantic coast.

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[1] Prescott in reviewing this subject says: "The great staple of the country, as indeed of the American continent, was maize, or Indian corn, which grew freely along the valleys and up the steep sides of the Cordilleras to the high level of the tablelands. The Aztecs were as curious in its preparation, and as well instructed in its manifold uses, as the most expert New England housewife. Its gigantic stalks, in these equinoctial regions, afford a saccharine matter not found to the same extent in northern latitudes, and supplied the natives with sugar little inferior to that of cane itself . . ." *Conquest of Mexico.* N. Y. 1866. 1:112.

John Fiske in his *Discovery of America,* writes: "Maize or Indian corn has played a most important part in the history of the New World, as regards both white and red men. It could be planted without clearing or plowing the soil. It was only necessary to girdle the trees with a stone hatchet, so as to destroy their leaves and let in the sunshine. A few scratches and digs were made in the ground with a stone digger, and the seed once dropped in took care of itself. The ears could hang for weeks after ripening and could be picked off without meddling with the stalk; there was no need of threshing or winnowing. None of the Old World cereals can be cultivated without much more industry and intelligence. At the same time when Indian corn is sown on tilled land it yields with little labor more than twice as much per acre than any other grain." *Fiske, Discovery of America,* 1:27.

[2] In using the term *corn* hereinafter we refer exclusively to maize.

[3] Lawson very emphatically describes the utility of maize in the following: "The Indian corn or Maize proves the most useful Grain in the World; and had it not been for the fruitfulness of this species, it would have proved very difficult to have settled some of the Plantations in America. It is very nourishing whether in Bread, sodden or otherwise; and those poor Christian Servants in Virginia, Maryland and the other northerly Plantations, that have been forced to live wholly upon it do manifestly prove that it is the most nourishing Grain for a Man to subsist on, without any other Victuals." History of Carolina. Lond. 1714. *Cf.* Cartier Voyages. Tross ed.

[4] . . . we are indebted to the Indians for maize, without which the peopling of America would have been delayed for a century." Cyrus Thomas. Agriculture, in Hand-Book of American Indians. Bureau of Ethnology Bul. 30.

Almost the first discovery which the Pilgrim historian records is that of a cache of Indian corn found along the shore. On November 11, 1620 the historian writes:

They found a pond of clear fresh water and shortly after a good quantitie of clar ground where y^e^ Indeans had formerly set corne and some of their graves. And proceeding furder they saw newstuble wher corne had been set y^e^ same year, also they found where latly a house had been wher some planks and a great ketel was remaining and heaps of sand newly padled with their hands, which they digging up found in them diverce faire Indean baskets filled with corne and some in eares faire and good of diverce colours . . . and took with them parte of y^e^ corne and buried y^e^ rest . . . And here is to be noted a spetiall providence of God . . . that hear they got seed to plant them corne y^e^ next year, or els they might have starved for they had none, nor any liklyhood to get any.[1]

Few of us in these modern days realize the frightful struggles of these early pioneers to obtain food enough to sustain even the spark of life. It is recorded that some of the desperate Pilgrims, driven by the despair of hunger would even cut wood and fetch water for the Indians for a cap of corn. Others, we are told, "fell to plaine stealing both night & day from ye Indeans of which they (the Indians) greviously complained."[2]

The bitter experiences of the winter of 1622–23 compelled them to think how they might raise as much corn as they could and "obtaine a beter crop then they had done, that they might not still thus languish in miserie."[3] The struggle for existence was a hard one with all the colonists until they had mastered the methods of corn cultivation. The Indians who were the teachers soon found that they had students that outclassed them in many ways. Bradford's account of how the settlers learned to plant and cultivate is both interesting and enlightening. He writes:[4]

Afterwards they, as many as were able, began to plant ther corne, in which servise Squanto stood them in great stead, showing them both ye maner how to set it, and after how to dress and tend it. He also tould them excepte they gott fish and set with it in these old grounds it would come to nothing.

Trumbull also tells that the Connecticut Indians instructed the first settlers in the manner of planting and dressing corn.[5]

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[1] Bradford. History Plymouth Plantation, p. 49. Cols. Mass. Hist. Soc. Ser. 4. III:87. Bost. 1856.
[2] *Ibid.* p. 130.
[3] *Ibid.* p. 134.
[4] *Ibid.* p. 100.
[5] Trumbull. History of Connecticut, Hartford 1797. 1:46.

It was the success of the corn crop that made it possible for the eager colonists to live and to become the Pilgrim Fathers. The experiences of the Connecticut colonists did not differ, for as one historian says,". . . by selling them corn when pinched with famine they relieved their distress and prevented them from perishing in a strange land and uncultivated wilderness." [1]

Significant also is the statement of Capt. John Smith in his *History of Virginia:* ". . . such was the weakness of this poor commonwealth, as had not the salvages fed us we directlie had starved. And this relyfe, most gracious queen (Anne), was brought by this lady Pocahontas; . . . during the time of two or three years, shee next under God, was still the instrument to preserve this colonie from death, famine and utter confusion." [2]

Corn saved the colony as it had others before and after Smith's time, and as in other instances, our historian naïvely remarks, to obtain it, ". . . many were billited among the savages." [3]

And thus it is that the maize plant was the bridge over which English civilization crept, tremblingly and uncertainly, at first, then boldly and surely to a foothold and a permanent occupation of America.

II EARLY RECORDS OF CORN CULTIVATION AMONG THE IROQUOIS AND COGNATE TRIBES

As early as 1535, Jacques Cartier, pushing his way up the St Lawrence, saw fields of waving corn on the island of Hochelaga where he found a thriving village occupied by Iroquois people. He left us the record that these Indians had large fields and that they stored the harvested corn in garrets "at the tops of their houses." [4] Cartier also described the Hochelagans as "given to husbandrie . . . but are no men of great labour." [5]

Nearly every explorer who left a detailed record of his voyages recorded in a minute way his impressions of Indian agriculture and particularly of their cultivation of corn. Henry Hudson repeatedly mentioned in his records the maize which he saw on his voyage up the river which takes its name from him. Recording the events of

[1] Trumbull. History of Connecticut, 1:47.
[2] Smith, Capt. John. History of Virginia. Lond. 1632. p. 121.
[3] *Ibid.* 2:229. Richmond reprint. 1819.
[4] Hakluyt. Voyages. Lond. 1810. 3:272.
[5] *Ibid.*

September 13, 1609, and giving the latitude[1] as 42° 18′, Hudson wrote:[2]

I saw there a house well constructed of oak bark . . . a great quantity of maize or Indian corn and beans of last year's growth, and there lay near the house for the purpose of drying enough to load three ships, besides what was growing in the fields.

In the journal of Robert Juet,[3] mate on the Half Moon, is a statement under date of September 4, 1609, that " . . . they have a great store of corn whereof they make good bread." This corn was undoubtedly maize, if we are to judge by contemporary descriptions that name the corn specifically.

Sagard has left us a good description of corn cultivation among the Huron, and his account being one of the earliest and most detailed, we quote it in full.

The wheat (Indian corn) being thus sown in the manner that we do beans, of a grain obtained only from a stalk or cane, the cane bears two or three spikes, and each spike yields a hundred, two hundred, sometimes 400 grains, and some yield even more. The cane grows to the height of a man and more, and is very large, (it does not grow so well or so high, nor the spike as large nor the grain so good in Canada nor in France, as there) in the Huron country. The grain ripens in four months and in some places three. After this they gather and bind the leaves (husks), turned up at the top and arrange it in sheaves (braids), which they hang all along the length of the cabin from top to bottom on poles, which they arrange in the form of a rack descending to the front edge of the bench. All this is so nicely done that it seems like a tapestry hung the whole length of the cabins. The grain being well dried and suitable to press (or pound) the women and girls take out the grains, clean them and put them in their large tubs (tonnes) made for this purpose, and placed in their porch or in one corner of the cabins.[4]

It, however, remained for Champlain to give us the first detailed accounts of the cornfields and the methods of cultivation by the Indians in the region of the St Lawrence and lower lake district. Champlain in the beginning probably believed much as many per-

[1] The present city of Hudson lies in latitude 42° 14′.

[2] De Laet. New Netherlands. N. Y. Hist. Soc. Col. Ser. 2. N. Y. 1841. 1:300.

[3] Extract from the *Journal of the Voyage of the Half Moon, Henry Hudson, Master, From the Netherlands to the coast of North-America in the Year 1609* by Robert Juet, Mate. Republished by the N. Y. Hist. Soc. Col. Ser. 2. N. Y. 1841. 1:323.

[4] Sagard. Voyage to the Hurons. (*Le Grand Voyage du pays des Hurons*, 1632). Tross ed. Paris, 1865. 1:135.

Plate 1

View of Seneca farm lands and cornfields in the Cattaraugus flats. This is a typical farm of the conservative Seneca. It may be regarded as typical also of the Seneca farms of a century ago

sons do even now, that the Indians were hunters only but his changed opinion is recorded as follows:

July the tenth, 1605.

They till and cultivate the soil, something which we have not hitherto observed. In place of ploughs, they use an instrument of hard wood, shaped like a spade. This river is called by the inhabitants of the country Chouacoet. The next day Sieur de Monts and I landed to observe their tillage on the banks of the river. We saw their Indian corn which they raise in gardens. Planting three or four kernels in one place they then heap up about it a quantity of earth with shells of the signoc before mentioned. Then three feet distant they plant as much more, and this in succession. With this corn they put in each hill three or four Brazilian beans which are of different colours. When they grow up they interlace with the corn which reaches to the height of from five to six feet; and they keep the ground very free from weeds. We saw many squashes and pumpkins and tobacco which they likewise cultivate . . . The Indian corn which we saw at that time was about two feet high and some as high as three. The beans were beginning to flower as also the pumpkins and squashes. They plant their corn in May and gather it in September.[1]

When the Iroquois took possession of the territory which we now know as New York State, they carried on corn culture on a large scale and so important an article of food and commerce was it that most of the European invaders of their territory burned their cornfields and destroyed their corncribs instead of shooting the Iroquois themselves but, as one writer says, the power of the Confederacy remained unbroken.[2]

The French made a mistake fatal to French supremacy in the middle Atlantic region. In 1609 under Champlain they fired upon a small detachment of Iroquois at Ticonderoga and thereafter the Iroquois were the bitter enemies of the French, while they espoused the cause of the English.[3] The French realized their error most

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[1] Voyages of Samuel de Champlain, 2:64–65. Prince Soc. Reprint 1878. *Cf. also* p. 81–82.

[2] Carr. Mounds of the Mississippi Valley, p. 515. Smithsonian Report. 1891.

[3] The Iroquois, especially the Seneca, were not always uniformly consistent in their alliances with the British, but in general their arms were at the disposal of the English colonial authorities. The espousal of the English cause by the Iroquois greatly strengthened the hold of the British in eastern North America and led to the expulsion of French domination from the continent.

In an address before the New York Historical Society in 1847, Dr Peter Wilson, a Cayuga-Iroquois, reminded the society of this fact in the following

keenly when they found the Iroquois a barrier between them and the trails to central New York and down the Ohio river. To break the power of the Iroquois Confederacy, expedition after expedition was sent out against them, notably those of Champlain in 1615, of Courcelles in 1655, of De Tracy in 1666, of De la Barre in 1684, of Denonville in 1687 (whose work was particularly destructive to cornfields), and of Frontenac in 1692 and 1696. All these gallant commanders failed to accomplish the destruction of Iroquois power perhaps for reasons such as given by Denonville in the following:

. . I deemed it our best policy to employ ourselves laying the Indian corn which was in vast abundance in the fields, rather than to follow a flying enemy to a distance and excite our troops to catch only some straggling fugitives. . . We remained at the four Seneca villages until the 24th; the two larger distant four leagues and the others two. All that time was spent in destroying the corn which was in such great abundance that the loss including old corn which was in cache which we burnt and that which was standing, was computed according to the estimate afterwards made at 400 thousand minots (about 1,200,000 bushels) of Indian corn. . . A great many both of our Indians and French were attacked with a kind of rheum which put everyone out of humor.[1]

The quantity of corn here destroyed by Denonville is claimed by some authorities to be overestimated and perhaps this is true, as being "out of humor," the amount may have seemed larger than it really was.

The corn-destroying habit of the invaders of the Iroquois dominion was still active when later, in 1779, Maj. Gen. John Sullivan made his famous raid against the Iroquois. The accounts of his officers and soldiers which have come down to us in their journals are most illuminating, when aboriginal corn statistics are sought. "The Indians," said Gen. Sullivan in discussing the subject, "shall see that there is malice enough in our hearts to destroy everything that contributes to their support." How well he fulfilled his threat may be known by reviewing the record of his campaign.

The journals of Sullivan's campaign through the Iroquois country are replete with descriptions of the Iroquois cornfields and the fre-

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words: "Had our forefathers spurned you from it (the Iroquois "Long House") when the French were thundering at the opposite end, to get a passage and drive you into the sea, whatever had been the fate of other Indians, the Iroquois might still have been a nation and I too might have had a country."

[1] Doc. Hist. of the State of N. Y. 1:328–29. Albany 1849. *Cf.* Charlevoix. Nouvelle France, 2:355; Lahontan. Voyages, I, p. 101.

quent mention indicates the importance of corn as a food to the Iroquois. The destruction of the corn supply was a greater blow to the Iroquois than the burning of their towns. Huts might easily have been built again but fields would not yield another harvest after September.

In the journal of Maj. John Burrowes, as in other journals covering the Sullivan campaign, there are many references to the Indian fields. Some instances follow:

Friday, August 27, 1779. Observations. We got this night at a large flat three miles distant from Chemung where corn grows such as can not be equalled in Jersey. The field contains about 100 acres, beans, cucumbers, Simblens, watermelons and pumpkins in such quantities (were it represented in the manner it should be) would be almost incredible to a civilized people. We sat up until between one and two o'clock feasting on these rarities.

Monday, Middletown, 30th Aug. The army dont march this day but are employed cutting down the corn at this place which being about one hundred and fifty acres, and superior to any I ever saw . . . (*Observations*) The land exceeds any I have ever seen. Some corn stalks measured eighteen feet and a cob one foot and a half long. Beans, cucumbers, watermelons, muskmelons, cimblens are in great plenty. . .

Camp on the Large Flats 6 Miles from Chenesee 15th Sep. Wednesday morning. The whole army employed till 11 o'clock destroying corn, there being the greatest quantity destroyed at this town than any of the former. It is judged that we have burnt and destroyed about sixty thousand bushels of corn and two or three thousand of beans on this expedition.

In his letter to John Jay under date of September 30, 1779, General Sullivan reported among other things:

Colonel Butler destroyed in the Cayuga country five principal towns and a number of scattering houses, the whole making about one hundred in number exceedingly large and well built. He also destroyed two hundred acres of excellent corn with a number of orchards one of which had in it 1500 fruit trees. Another Indian settlement was discovered near Newtown by a party, consisting of 39 houses, which were also destroyed. The number of towns destroyed by this army amounted to 40 besides scattering houses. The quantity of corn destroyed, at a moderate computation, must amount to 160,000 bushels, with a vast quantity of vegetables of every kind. . . I flatter myself that the orders with which I was entrusted are fully executed, as we have not left a single settlement or a field of corn in the country of the Five Nations. . .

In his report of Sept. 16, 1779, to General Washington concerning his raid against the Seneca on the Allegany, Daniel Brodhead said:

The troops remained on the ground three whole days destroying the Towns & Corn Fields. I never saw finer corn altho' it was

planted much thicker than is common with our Farmers. The quantity of Corn and other vegetables destroyed at the several Towns, from the best accounts I can collect from the officers employed to destroy it must certainly exceed five hundred acres which is a low estimate and the plunder is estimated at 30m Dollars[1] . . .

[1] Meaning probably $30,000.

Quotations from the journals of soldiers and officers could be multiplied to some length with but one result, that of corroborating the fact that the Iroquois cultivated corn, beans, squashes, pumpkins and other vegetables in large quantities and to an extent hardly appreciated by the general student of history.[2]

The beautiful valley of the Genesee, renowned among the Indians as the fertile garden region of the Seneca was cultivated for miles of its length. Luxuriant fields, patches of forest land and wide openings of grass land were found throughout the valley. The impetuous army of Sullivan, inflamed by the depredations of the Iroquois and bent upon wreaking vengeance upon a tribe of ignorant savages entered the Genesee valley with feelings of utmost surprise for they found the land of the savages to be, not a tangled wilderness but a smiling blooming valley, and the savages domiciled in permanent houses and settled in towns. General Sullivan describes the town of Genesee, for example, as containing 128 houses, mostly large and elegant, and names it as one of the largest. It was beautifully situated, he added, "almost encircled with clear flat land extending a number of miles; over which extensive fields of corn were waving, together with every kind of vegetable that could be conceived." Forty towns were obliterated, 60,000 bushels of corn destroyed, fruit orchards uprooted, girdled or chopped down, one containing 1500 trees. Ruin was spread like a blanket over the Iroquois country and their garden valley reduced to a desolate blighted and forsaken region dotted with blackened ruins. Hardly a food plant remained for the oncoming winter.[3]

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[2] *See* Stone. Life of Brandt. N. Y. 1838. v. 2, ch. 1; Journals of the Military Expedition of Major General John Sullivan against the Six Nations, 1779. Auburn 1887.

[3] *Cf.* Stone. Brant, 2:33.

III IROQUOIS CUSTOMS OF CORN CULTIVATION

1 **Land clearing and the division of labor.** Land for corn-fields was cleared by girdling the trees in the spring, and allowing them to die. The next spring the underbrush was burned off. By burning off tracts in the forests large clearings were made suitable for fields and towns. Early travelers in western New York called these clearings "oak openings."[1] Certain tracts, however, seem always to have been open lands and it is a mistake to believe that the country was entirely wooded.

Van der Donck was much impressed by the "bush burnings" of the Indians of New Netherlands and records that they present a "grand and sublime appearance."[2] Unless the trees were girdled or dead they were not ordinarily injured by the "bush burning."

The work of girdling the trees[3] and of burning the underbrush was that of the men.[4] With the tall trees girdled and the underbrush burned off it was an easy matter to scrape up the soft loam and plant the corn but the field was not considered in fit form until the small shrubbery and weeds had been subdued. Fields with standing dead trees were not regarded as safe after the first year

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[1] *See* Ketchum. Buffalo and the Senecas, 1:17–19. *Cf.* Dwight. Travels in New England and New York

[2] Van der Donck. New Netherlands. Amsterdam 1656.

[3] La Potherie. Paris 1722, 3:18.

[4] Sagard in his *Voyages des Hurons* has left us a good description of this work among the Hurons. The translation which follows is taken from Carr's *Mounds of the Mississippi Valley.*

"The Indians belt (coupent) the trees about two or three feet from the ground, then they trim off all the branches and burn them at the foot of the tree in order to kill it and afterwards they take away the roots. This being done, the women carefully clean up the ground between the trees and at every step they dig a round hole, in which they sow 9 or 10 grains of maize which they have first carefully soaked for some days in water."

Peter Kalm, whose observations of Indian usages were accurate and detailed, records:

"The chief use of their [stone] hatchets was according to the unanimous accounts of all the Swedes to make good fields for maize-plantations; for if the ground where they intended to make a maize-field was covered with trees they cut off the bark all round the trees with their hatchets, especially at the time when they lost their sap. By that means the tree becomes dry and could not take any more norishment and the leaves could no longer obstruct the rays of the sun from passing. The smaller trees were pulled out by main force, and the ground was turned up with crooked or sharp branches." Kalm, 515, Pinkerton's Voyages

and speedy means were taken thereafter to burn them down. In the Seneca invocations to the Creator at the midwinter thanksgiving is a prayer that the dead branches may not fall upon the children in the fields.

In time the trees were burned or rotted away to leave cleared patches. The Iroquois men[1] did very little in the way of field work but it is said that they sometimes helped clear the land but never allowed any one to see them. Some of the old Indians whom the writer interviewed told laughable stories of grim old "warriors" who had been caught with a hoe and how they excused themselves.

One early writer even goes so far as to say that if a man loved his wife devotedly he often helped her with the field work. As a rule, however, among the Iroquois the men disdained the work which they deemed peculiarly that of women.

One writer remarks that the Iroquois were too busy with their conquests to engage in field work and this is largely true. In the age of barbarism the condition of society is one of constant emergency. Invasion and the destruction of property is momentarily expected. The Iroquois by dividing the labors necessary to sustain life in the manner in which they did contributed much to the strength of their nation and its arms. The function of the men was to hunt, to bring in the game and stand ever ready to defend their people and their property and to engage in war expeditions. An Iroquois man must be ever generous and give to every one who asked for his arms or his meat. If he brought his bear to the village it became public property, to the material injury of himself and family. He therefore left his game hidden in the outskirts of his town and sent his wife[2] to bring it in.[3] She was not bound to give of her husband's bounty and could properly refuse the appeals

[1] La Potherie in his *Historie de l'Amérique,* volume III, page 18 et seq. says that the men cleared the ground and assisted in braiding the harvested ears. *Cf.* Lawson. Carolina.

[2] The writer in mentioning Indian females never uses the term *squaw.* As a name in colonial days it may have been proper but it is no longer good form and its use is frowned upon by the Iroquois women of this State and Canada. It has come with them to mean a degraded female character. The Superintendent of the Six Nations of Canada was severely rebuked several years ago by an old Mohawk woman who resented the term as applied to the women of her nation. The term is of course of Algonquin origin. An Allegany Seneca once explained to me that this word was no longer good language, just as Shakspere's word *wench* is no longer good English as applied to a housewife, or *villian* as applied to a farmer.

[3] *Cf.* Carr. Food of Certain American Indians, p. 167; Tanner. Narrative, p. 362; Cadillac in Margry 68, Charlevoix, v. 171.

of the hungry, lazy or others who loved to prey upon generosity. After the meat was cooked, however, the case was different and she was bound to feed any who came to her door.

The Iroquois and other Indians have frequently been reproached by writers for allowing or forcing their women to do field labor while the men enjoyed the hunt[1] or lazily fished, or perchance went "high ho!" on the war path. It should be remembered, however, that hunting in those raw days was no easy task. It was not sport then as it is now but work that demanded the use of every faculty. Heckewelder[2] remarks most aptly that the "fatigues of hunting wear out the body and constitution more than manual labor." Another writer says, and there is a sense in which his description might apply in these modern times, that "their manner of rambling through the woods to kill deer is very laborious exercise, as they frequently walk 25 or 30 miles through rough and smooth grounds, and fasting, before they return to camp loaded."[3]

Heckewelder sums up the case when he says that woman's labor in the fields consumed but six weeks out of the year while "the labor of the husband to maintain his family lasts throughout the year."[4]

Woman's part in the division of labor was not a hard one nor even a compulsory one. The labor of the fields was a time welcomed by the women then as modern people now welcome an outing. It was the occasion of productive pleasure. As Heckewelder says,[5] ". . . The cornfield is planted by her and the youngsters in a vein of gaiety and frolic. It was done in a few hours and taken care of in the same spirit."

In the *Life of Mary Jemison,*[6] the white captive of the Genesee, she states:

> Our labor was not severe, and that of one year was exactly similar in almost every respect to that of others, without that endless variety that is to be observed in the common labor of white people. Notwithstanding the Indian women have all the fuel and bread to procure, and the cooking to perform, their task is probably not harder than that of white women who have those articles provided for them; and their cares certainly not half as numerous, nor as great. In the summer season we planted, tended and harvested our corn, and

[1] *Cf.* Lawson, p. 188.
[2] Heckewelder. Historical Account of the Indian Nations, p. 146.
[3] Adair. History of the American Indians. Lond. 1755. p. 402.
[4] Heckewelder. Historical Account of the Indian Nations, p. 142
[5] *Ibid.* p. 142.
[6] Seaver. Life of Mary Jemison, p. 69.

generally had our children with us; but had no masters to oversee or drive us, so that we could work as leisurely as we pleased.

With the breaking up of the military power of the Iroquois and the subjection of all Indian tribes to the federal government, the men were left freer. War with them was over. The disdain which they had for field labor, and the feeling that it was not a part of their work clung for some time, but as the old reason for abstaining from field work passed away and as the environment of the white man was forced upon them, the Iroquois man gradually became the man with the hoe and thought it no disgrace. This was hardly the case, however, a century ago.

The women of each settlement each year elected a chief matron, onä^{n}'o gäin'dago^{n} et'igowānĕ[1] to direct their work in the communal fields. She ordered all the details of planting, cultivation and harvesting. She also had the right to choose one or two lieutenants who could give out her orders.

Certain fields were reserved for the use of the nation, that is, to supply food for the councils and national festivals. These fields were called Kĕndiŭ''gwă'ge' hodi'yĕn'tho'.

2 **Preparation of the soil and planting.** In preparing the soil a digging implement made of wood, somewhat resembling a short hoe was used. The blade was sometimes a large flat bone or simply a piece of wood worked flat. The hoe in this case was of one piece, the trunk of a sapling serving as a handle and the tough bulbous root end which ran off at right angles, shaped into a blade, served as the digging end.[2]

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[1] Literally meaning "corn plant, its field's female chief.

[2] "Use wooden hoes," Williams. Key, p. 130.

"Spades made of hard wood." Bossee. Travels Through Louisiana, p. 224

"Ils ont un instrument de bois fort dur, faict en facon d'une besche." Champlain, 1:95.

"Il leur suffit d'un morceau de bois recourbe de trois doigts de largeur, attaché a un long mauche qui leur sert a sarcler le terre et a la remuer legerment." Lafitau. Moeurs des Sauvages Ameriquains, II:76.

"Use shoulder blade of a deer or a tortoise shell, sharpened on a stone and fastened on a stick instead of a hoe." Loskiel. Missions of North America, p. 67.

"Performed the whole process of planting and hoeing with a small tool that resembled in some respects a hoe with a very short handle." Seaver, Life of Mary Jemison, p. 70.

Cf. Hakluyt. Voyages, III:329.

"In order to sow Indian Corn they make Pick-Axes of Wood." A Continuation of the New Discovery, Hennepin, Father L. Lond. 1698.

The writer has found in various old sites pieces of flattened antler[1] [*see* fig. 1] with one worn edge and the lower surfaces well polished which seem to have been hoe blades. In the Mississippi valley and often in New York hoe heads of picked and chipped stone were used.

Fig. 1 Antler hoe blade (Cut is ½ actual size.)

Where wooden hoes were used it is probable that the digging ends were hardened in the fire by a semicharring of the surface. Hardening in this manner was usual where a resisting surface was needed.

Thomas Hariot, a keen and reliable observer though not always a good speculator, has left us in his *Brief and True Report* an excellent description of the cultivation of maize by the coastal Indians of Virginia. In 1587 he writes:

All the aforesaid commodities for victuals are set or sowed sometimes in grounds apart and severally by themselves, but for the most part together in one ground mixtly: the manner thereof with the dressing and preparing of the ground, because I will note unto you the fertility of the soil, I think good briefly to describe.

The ground they never fatten with muck, dung, or anything, neither plow or dig it as we in England but only prepare it in a sort as followeth: A few days before they sow or set the men with wooden instruments made almost in the form of mattocks or hoes with long handles, the women with short peckers or parers, because they use them sitting, of a foot long and five inches in breadth, do only break the upper part of the ground, to raise up the weeds grass and old stubs of cornstalks with their roots. The which after a day or two days drying in the sun, being scraped up into many small heaps, to save them the labor of carrying them away, they burn to ashes. And whereas some may think that they use the ashes for to better the ground, I say that then they would either disperse the ashes abroad, which we observe they do not, except the heaps be too great, or else would take special care to set their corn where the ashes lie, which also we find they are careless of. And this is all the husbanding of their ground that they use.

Then their setting or sowing is after this manner. First, for their corn, beginning in one corner of the plot with a pecker they make a

[1] *Cf.* Parker, A. C. Excavations in an Erie Indian Village. N. Y. State Mus. Bul. 117. p. 535.

hole wherein they put out four grains, with care that they touch not one another (about an inch asunder), and cover them with the mould again; so throughout the whole plot, making such holes and using them in such manner, but with this regard, that they be made in ranks, every rank differing from the other half a fathom or a yard and the holes also in every rank. By this means there is a yard of spare ground between every hole; where according to discretion here and there they set as many beans and pease; in divers places also among the seeds of Macocqwer, Melden and Planta Soles. . .

Another early description of corn and its cultivation is given by Harris in his *Discoveries and Settlements.* For the purpose of comparison with the foregoing, as well as for its information, this description is given verbatim:

The manner of planting is in holes or trenches, about five or six feet distance from each other; the earth is opened with a hoe (and of late years, with a plough), four inches deep, and four or five grains thrown into each hole or trench, about a span distant from each other, and then covered with earth; they keep weeding it from time to time, and as the stalk grows high they keep the mould about it like the hillocks in a hop garden; they begin to plant in April but the chief plantation is in May, and they continue to plant till the middle of June; what is planted in April is reaped in August; what is planted in May is reaped in September; and the last in October.[1]

While the ground is being prepared for sowing, the seed corn is soaked[2] in warm water or in a decoction made of helebore[3] root and some other herb which the writer has not yet identified. These roots are said to be a "medicine for the corn" but in reality the "medicine" is a poison for crows and other field pests which might eat the seed corn. A bird eating this "doctored" corn becomes dizzy and flutters about the field in a way which frightens the others.

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[1] Harris. Discoveries and Settlements Made by the English. *In* Pinkerton. Voyages, 12:242. *Cf.* Beverly, p. 126–27.

Cf. Their manner of planting it is to make with the finger or with a little stick, separate holes in the ground, and to drop into each one eight or nine grains which they cover with the same soil that had been taken out to make the hole." Jesuit Relations, 67:143. (Rale's letter to his brother.)

Cf. Beverly. History of Virginia, p. 127.

[2] *Cf.* Sagard. Voyages des Hurons, p. 134. Paris 1632.

[3] *Cf.* Kalm. Travels in North America. Lond. 1772; Pinkerton. Voyages, 13:527.

Peter Kalm is the only observer in whose writings the author has found the use of the poison decoction mentioned.[1]

Handsome Lake, the prophet, in his code commanded that these herbs always be used.

The corn was carefully dropped in the hills so as not to break the germs which had nearly burst through. Among the Senecas, in planting corn the seeds of the squash and bean were sown in every seventh hill because it was thought that the spirits of these three plants were inseparable. They were called Diohe''ko, *these sustain us.*[2]. In the Green Corn Thanksgiving the leader rises and says, "Diettino^{n}'ñio' diohe''ko^{n}, *we give thanks to our sustainers.*"

Certain women banded themselves together in a society called the Toñwisas[3] or To^{n}wi'sas Oä'no. They propitiated the spirits of the three sisters by certain ceremonies. In their ceremonial march, Wenŭntoñwi'săs, the leader holding an armful of corn and a cake of corn bread leads her band in a measured march about a kettle of corn soup. The ritual of this society has been translated by the writer. A pen drawing of the march of the Toñwi'sas made by a Seneca youth is shown in figure 2.

Each year at planting time each community observed a planting festival in which the Creator was implored to continue his bounty and his accustomed ways. Sacrifices of tobacco and wampum were made to the spirits of growth and to the pygmies, Djo^{n}gä'o^{n}, and a general thanksgiving for past blessings was given. Especial favor was asked in the growth of the corn.[4]

The Planting Thanksgiving was called by a council of elders in whose charge this festival was placed and lasted for a full day. The addresses to the Creator, however, were all given in the early morn-

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[1] *Ibid.* p. 531.

See also Kalm on bird pests, *Ibid.* p. 523, 527, 531.

[2] The Aztecs called the corn goddess Tonacaygohua, *She feeds us.* She was sometimes called Centeotl. She was also regarded as the goddess of the earth and was the most beloved deity worshiped by the ancient Mexicans and was the only one that did not require the sacrifice of human victims. It is interesting to note that the Corn goddess was also called Tzinteotl, the original goddess. Her name changed to Xilonen, Iztacaccuteotl, and Tlatlauhquicenteotl according to the various stages in the growth of the corn.

[3] For a fuller description *see* American Anthropologist. New Ser. 1909. v. 11, no. 2. Parker, A. C. Seneca Medicine Societies.

[4] Clark, J. H. V. Onondaga. Syracuse 1849. 1:54.

ing. The office of speaker belonged of course to a man but other offices were held by women.

The address to the Creator as given by Morgan, follows:

Great Spirit, who dwellest alone, listen now to the words of thy people here assembled. The smoke of our offering arises. Give kind attention to our words, as they arise to thee in the smoke. We thank thee for this return of the planting season. Give us a good season, that our crops may be plentiful.

Continue to listen, for the smoke yet arises. [Throwing on tobacco] Preserve us from all pestilential disease. Give strength to us that we may not fall. Preserve our old men among us and protect the young.

Help us to celebrate with feeling the ceremony of this season. Guide the minds of thy people, that they may remember thee in all their actions, na-ho.[1]

Earlier in the spring the Thunder dance was held to honor He"-no^{n} Ti'sōt, *Thunder, our grandfather*. He was asked to remember the fields with a proper amount of rain and prevent the maize fields from parching. If rain failed to come another Thunder ceremony might be held.[2]

Cornfields were not always owned by the tribe or clan. Individuals might freely cultivate their own fields[3] if they were willing to do their share in the tribal fields. If they did not do this they could not claim their share of the communal harvest. Individual fields were designated by a post on which was painted the clan totem and individual name sign. Any distressed clansman, however, might claim a right in the individual field and take enough to relieve his wants, provided he notified the owner.

The first hoeing[4] is called de'owĕnyĕ', and takes place when the corn is a span high. The second and final hoeing is called the *hilling up*, ĕye^{n}'o^{n}' or hadiyĕ^{n}s', and is called for when the corn is knee high.

3 **Communal customs.** The women of a community who own individual fields and their husbands or male friends may form a

[1] Morgan. League, p. 196.

[2] *Ibid.* p. 196–97.

[3] *Cf.* Margry 1:123; Jesuit Relations, 52:165.

[4] "The Indians used to give it one or two weedings, and make a hill about it, and so the labor was done." Beverly. Hist. of Virginia. Ed. 2. p. 125–28. Lond. 1722.

mutual aid society[1] known as "*(In the) Good Rule they assist one another,*" Gaï'wiu Onˀdănnide'oshä, (Sen). This society chooses a matron of the cornfields, eti'gowānĕ, who inspects the individual fields or gets reports regarding their progress and who orders the rest of the band to go to the field she wishes cultivated at a certain day and hour. She commences the hoeing and ranges her helpers in equal numbers on either side and a little to the rear and hoes to the end of the row a little in advance of the rest, counts off the unhoed rows and takes her position again.

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[1] Roger Williams in his *Key* notes this custom among the New England Algonquins. "When a field is to be broken up," he says, "they have a very loving, sociable, speedy way to dispatch it; all the neighbors, men and women, forty, fifty or a hundred, do joyne and come in to help freely with friendly joyning they break up their fields and build their forts."

"As an organized body of workers, the women of each gens formed a distinct agricultural corporation." Stites, Sara H. Economics of the Iroquois, p. 31, Bryn Mawr Col. Monographs v. 1, no. 3.

In Seaver's *Life of Mary Jemison* [*see* p. 70–71] we find a detailed description of this cooperative work:

"We pursued our farming business according to the general custom of Indian women, which is as follows: In order to expedite their business, and at the same time enjoy each other's company, they all work together in one field, or at whatever job they have at hand. In the spring they choose an old active squaw to be their driver and overseer, when at labor for the ensuing year. She accepts the honor and they consider themselves bound to obey her.

When the time for planting arrives and the soil is prepared, the squaws are assembled in the morning and conducted into a field where each one plants a row. They then go into the next field and plant once across and so on until they have gone through the tribe. If any remains to be planted, they again commence where they did at first (in the same field) and so keep on till the whole is finished. By this rule, they perform their labor of every kind and every jealousy of one having done more or less than another is effectually avoided."

This custom of helping is continued to this day. Among the Christian Iroquois such work is called a "bee" but among the followers of the old ways the mutual aid societies still exist and they continue "in the good rule (gaï'wiŭ) to assist one another." *A. C. P.*

Compare also Lawson's *Carolina,* page 179. "They are very kind and charitable to one another, but more especially to those of their own Nation . . . The same assistance they give to any Man that wants to build a Cabin, or make a Canoe. They say it is our Duty, thus to do; for there are several Works that one Man can not effect, therefore we must give him our Help, otherwise our Society will fall, and we shall be deprived of those urgent Necessities which Life requires."

Cf. Adair. p. 407.

Cf. Cullen. Clavigero's Mexico.

It is the duty of the owner of the field to provide a feast at the end of the hoeing and each helper takes home her supply of corn soup, hominy or ghost bread. After the hoeing and before eating the women flock to the nearest stream or pond and bathe. The whole work is accompanied by singing, laughing, joking and inoffensive repartee[1] and the utmost humor prevails, topped off by a splash in the water to remove dust and fatigue.

This hoeing "bee" is called ĕndwă'twenogwa', (Sen.).

4 **The harvest.** In the autumn when the corn is ripe, when the "great bear chase is on in the heavens," the harvesting begins. The corn standing in the fields may be stripped of the ears by the harvesters who throw the ears over their shoulders, generally the left, into a great harvesting basket, ye'nistĕⁿnĕk'wistă'. The corn is then deposited in piles in the field or carried to the lodge. Sometimes the cornstalks are pulled up by the roots and carted to the house where they are piled up in layers crosswise for future husking. The plucking bee was called hadi'nest'e'oes or if engaged in by women alone, wadi''nĕst'eoes.

The husking bee that followed was called hadinowe'yă'ke' or if women only engaged in the work, wadinowi'yă'ke'. Husking time was another time for a long season of merry industrial gatherings. Work was play in those days when mutual helpfulness made money unnecessary. It was not uncommon for men to engage in this work.[2] They were lured to the scene by the promise of soup, song and the society of wise old matrons and shy maidens.[3] The old women carefully noted the industry of their younger assistants and scheming parents were able to obtain information about prospective mates for their children.

The older men did some work but not much. They aired their wisdom by making wise observations but soon lost their reserve in narrating exciting stories of personal adventure or by relating folk tales, gagă'ă'. They knew full well that a pail full of soup awaited them when the husking ceased whether they worked or not. Often

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[1] *Cf.* Adair. p. 407.

[2] Lafitau, volume 2, page 78, says that the men braided corn, but that this was the only time when they were called upon to do such menial work.

[3] Lafitau, volume 2, page 79, writing of harvest customs says: "At harvest time the corn is gathered with the leaves surrounding the ears which serve as cords to keep the ears together. The binding of the ears belongs to a peculiar ceremony which takes place at night and it is the only occasion where the men, who do not trouble themselves about harvesting or field work, are called by the women to help."

the "bee" would be enlivened by a marching dance, and for this emergency the men brought their water drums[1] and horn rattles and cleared their throats for singing.

The men smoked incessantly of native tobacco mixed with dried sumac leaves and red willow bark. Some of the older women, if not all, claimed the same privilege. The writer has attended some of these "bees" and though he never saw a pipe in a young woman's mouth,[2] he sometimes thought he saw a quid of store tobacco tucked away in a bloomy brown cheek, no doubt used as a toothache preventive.

The "bees" were often conducted out of doors under the white moonlight. A roaring fire of sumac brush or logs tempered the crisp air of the night but left it sufficiently invigorating to keep up spirit and keep the workers active. There was nothing unhealthful in these night carnivals where the smell of the corn plant, the breath of the pines blown by the autumn wind, the smoke of the fragrant burning wood and the pure merriment of the workers and the knowledge of good work furnished the sole exhilaration.

Husked ears may be placed in a corncrib, onä^{n}'o' iadă'kwa, or arranged for roasting. When the husk is stripped back for braiding the ears are stood up in rows, against the wall or log with the husks on the floor or ground. When the worker arose for rest the others covered the husks with corn leaves and loose husks to keep them moist. The work of braiding was called waest"shâni' (com. gen.), or wastĕ^{n}'shâni (fem. gen.).

Sick and injured members of the "mutual aid company" were always assisted by the company even in the matter of preparing the soil, planting and harvesting. This help was considered as a right and never as a charity.

In the work of tillage plows or digging sticks are called yetogatŏt'thă; hoes are called gâu"djishä'. The bone husking pin is called yĕ^{n}nowiyă"thă.

Husking pins are shaped much like the ancient bone and antler awls but generally have a groove cut about a third of their length about which is fastened a loop, through which it is designed that the middle finger be thrust. The point of the husking pin is held against the thumb. In husking the hand is held slightly open, the ear grasped

[1] *Cf.* Adair, p. 407.

[2] *Cf.* Jesuit Relations, 67:141.

in the left hand, ear butt downward, the point of the husker thrust into the nose of the ear and under the husk, by a sidewise shuttle motion, the thumb closes quickly over the pin and tightly against the

Fig. 3 Seneca husking pin (specimen is 4¼ inches in length)

husk, and a pull of the arm downward and toward the body tears away the husk. Many of the ancient bone awls found in refuse pits may be husking pins as well as leather awls.

a Abnormal ears. When harvesters find a red ear all the harvesters give the finder for his or her own use two ears of corn with the husk pulled back ready for braiding. The red ear is called the "King ear" or Hosan'nowa'nĕⁿ'.

When one finds an ear with only two diametrically placed rows filled out the finder receives as a reward an ear of corn ready for braiding from each harvester. This ear is called oa'de meaning *the roadway*. The unfilled space is "caused by the devil who has licked the cob with his tongue!"

When a large ear is found on which no kernels have grown or on which they are undeveloped, it is called gagĕⁿ'tci, *it is an old one*. The finder is rewarded by the gift of a single ear of normal corn with the husk pulled back ready for braiding. The finding of one of these abnormal ears is the cause of much merriment. The gagĕⁿ'tci ear is short and of unusual diameter,—"it is all gone to cob." Sometimes these ears are collected and braided in strings for decorative purposes.

When the husk is pulled back for braiding the ear is called ganoñ-yon or onoñ'yoⁿ. If men, boys, girls and women engage in this work the process is called hadi'nonyoñtă'. If only women are working the work is called wa'dinonnyoñtă'.

When the ears are entirely stripped of husks the ear is called ganowiyă"goⁿ. The work of husking by a mixed company is called hă'dinowiyas, or if by women alone, wadi'nowiyas.

Corn smut is called odjiⁿgwĕⁿsho' (syphilis). The smut-blighted ear is termed odjiⁿgwĕs o'nisdă"ge.[1] The blighted cornstalk and its fruit is not used but cast aside and burned.

[1] The pink azaleas, Rhododendron nudiflorum, are known as odji'gwĕⁿdă'wĕⁿo', syphilitic flowers.

5 **Storage of corn.** The braided bunches[1] of corn[2] were hung on poles in the house or in a protected outbuilding. The shelled corn was preserved in bark barrels and might either be natural kernels or charred. When the braided strings of corn were stored in the house the pole hung from the ridge pole or from the cross beams. Cartier noticed this method in all probability when he wrote that they preserved it in garrets at the tops of their houses.[3]

Champlain mentions that corn was stored in the tops of the houses and enough cultivated to last three or four years.[4]

Lafitau[5] described minutely the Iroquois long house and said that it had storerooms for barrels and bark shelves above for storing provisions. Certain spaces below also were reserved for this purpose.

The description left us by Sagard previously quoted in this work, of the rows of braided corn, is a most vivid one. He says it hung like a tapestry the whole length of the cabin.[6]

The Iroquois harvested corn in greater quantities than they could consume and thus generally had a surplus for trade or emergency. Should one of the five nations have ill luck with their crops the others would respond to the need, for a consideration or gratuitously, as the case demanded.

The storage of corn was an important matter. Morgan, however, says:[7] "The red races seldom formed magazines of grain to guard against distant wants." A little examination of the works of early writers contradicts this statement which Morgan knew did not apply at any rate to the Iroquois.

Referring to the custom of burying corn and vegetables in pits Lafitau wrote:[8]

Didore of Sicile said that the first people of la grande Bretagne, having gathered their corn, kept it in subterranean granaries and it was only taken out in quantites immediately necessary. The Indian women have some sort of an underground granary where also they keep pumpkins (citroulles) and other fruits. It is a hole four to

[1] *Cf.* Sagard. Voyages des Hurons. Ed. n. 1865. pt 1, p. 135; or *see* footnote p. 31 of this work.

[2] *Ibid.* p. 93.

[3] Cartier in Hakluyt's Voyages, 3:271.

[4] Champlain. Voyages. Paris 1682. p. 301.

[5] Lafitau. Moeurs des Sauvages. Paris 1724. 2:12 et seq.

[6] *Cf.* Morgan. League, p. 318.

[7] Morgan. League, p.372.

[8] Lafitau, 2:80.

1 The ear of corn is plucked from the stalk and thrown over the shoulder into the picking basket. 2 Husking Tuscarora corn for braiding. Note how the husks are pulled back and the ear stood nose up against the basket.

Seneca women plucking Tuscarora corn. The small picking basket carried on the back is dumped into the large harvesting basket.

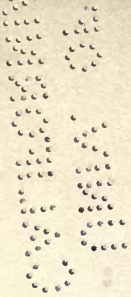

Plate 4

Braid of Seneca calico-hominy corn. This is the native method of preserving dried corn on the cob, now widely adopted by white people and others.

Plate 5

Seneca elm bark storage barrel, now obsolete among the Iroquois. Specimen is 31 inches high. Collected 1908 by A. C. Parker

five feet deep, lined with bark and covered with earth. Their fruits keep perfectly sound during the winter without any injury from the frost. As for the corn,— it is different,— instead of burying it, except in the case of necessity, they allow it to dry on scaffolds and under the eaves or in sheds outside of their houses.

At Tsonnontouann[1] they make bark granaries round and place them on elevations, piercing the bark from all sides so that the air will get in and prevent the moisture from spoiling the grain.

Morgan in his League[2] describes the *cache* in a somewhat similar way:

The Iroquois were accustomed to bury their surplus corn and also their charred green corn in caches, in which the former would preserve uninjured through the year, and the latter for a much longer period. They excavated a pit, made a bark bottom and sides, and having deposited their corn within it, a bark roof, water tight, was constructed over it, and the whole covered with earth. Pits of charred corn are still found near their ancient settlements.

The writer has found these corn pits throughout the Iroquois region in New York, one of them shown in plate 6. Many of these ancient pits show that they had been lined with long grass or with hemlock boughs,[3] for after the corn had been removed the pit was filled with rubbish and the entire matter burned or charred. In this manner the grass lining, if it were carbonized, was preserved and when excavated the charred grass lining could be removed in chunks or sheets. Mr Harrington has also noted this occurrence throughout his field of investigation in New York. The Iroquois have not abandoned this custom even now. Among the more primitive the custom of burying parched corn and other vegetables is still in vogue. In plate 7 is shown a group of pits on the Cattaraugus Seneca Reservation in Erie county. In the background the Council

[1] Also known as Sonnontouan, Totiacton and La Conception. The site of this old Seneca town is in the present town of Mendon, Monroe co., 1½ miles from Honeoye Falls.

[2] Morgan, p. 319.

[3] In describing corn storage, Kalm writes: "After they reaped their maize, they kept it in holes underground during winter; they dug these holes seldom deeper than a fathom. and often not so deep; at the bottom and sides they put broad pieces of bark. The Andropogon bicorne, a grass which grows in great plenty here, and which the English call Indian grass . . . supplies the want of bark; the ears of maize are then thrown into the hole, and covered to a considerable thickness with the same grass and the whole is again covered by a sufficient quantity of earth; the maize keeps extremely well in these holes and each Indian has several such subterranean stores where his corne lay safe though he travel far from it." Kalm. Pinkerton's Voyages, 13:539.

or Long House is to be seen. These pits are near the house of Edward Cornplanter and were photographed in the spring of 1909 after the store had been removed.

The custom of caching vegetables in the ground is, of course, one now followed by white people generally. Beauchamp[1] says the Mohawk word for making a *cache* is asaton. The Seneca word is similar, being wae'sado^{n}, meaning *she buried it. It is buried* would be, gasa'do^{n}.

The modern *caches* are lined with hemlock boughs instead of bark although wood is sometimes used and sometimes bark instead of boughs at the top. Over this is placed a mound of earth.[2]

Champlain is the first writer to describe the pit method of storing corn. He says: "They make trenches in the sand on the slope of the hills some five to six feet deep more or less. Putting their corn and other grains into large grass sacks[3] they throw them into these trenches and cover them with sand three or four feet above the surface of the earth, taking out as their needs require. In this way it is preserved as well as it would be possible in our granaries."

The corn found by the Pilgrims in November 1620 was buried in a similar manner.

In the Journal of a Dutch agent, by some supposed to be Arent Van Curler, who journeyed among the Mohawks and Oneidas in 1634–35, is a statement that the houses were full of corn, some of them containing more than 300 bushels.[4]

Corncribs are an Indian invention and for general construction have been little improved upon by white men. Figure 2 in plate 7 shows a modern Seneca crib.

IV CEREMONIAL AND LEGENDARY ALLUSIONS TO CORN

In the cosmologic myth of the Senecas corn is said to have sprung from the breasts of the Earth-Mother who died upon delivering the twins, Good Minded and Evil Minded. Thus the food of the mother's bosom still continued to give life to her offspring. Esquire Johnson, an old Seneca chief, in an interview with Mrs Asher

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[1] Beauchamp, *Dr* W. M. N. Y. State Mus. Bul. 89. p. 193.

[2] Compare the following: "The Indians thrash it as they gather it. They dry it well on mats in the sun and bury it in holes in the ground, lined with moss or boughs, which are their barns." Pinkerton. Voyages, 12:258.

[3] *Cf.* Hennepin. Voyages. Lond. 1698. p. 104.

[4] Amer. Hist. Ass'n Trans. 1895. Wilson, *Gen.* J. G. Arent Van Curler, Journal of, 1634–35, p. 91.

Wright, the missionary, in 1876 said that the beans, squashes, potatoes and tobacco plants sprang also from the grave. Some of the writer's informants declare that the squash grew from the grave earth directly over the Earth-Mother's navel, the beans from her feet and the tobacco plant from her head. Thus it is said of the latter plant, "It soothes the mind and sobers thought."

From the manuscript of Mrs Wright's interview with Johnson, the following is quoted:

Johnson says that a long time ago squashes were found growing wild. He says that he has seen them and that they were quite unpalatable, but the Indians used to boil and eat them. He says that in their ancient wars with the southern Indians they brought back squashes that were sweet and palatable and beans which grow wild in the south, calico colored, and which were very good, and he thinks the white folks have never used them. Also the o-yah-gwa-oweh (oyen'kwaoñ'we^{n}, tobacco) they brought from the south where it grows wild, also various kinds of corn, black, red and squaw corn, they brought from the prairie country south where they found it growing wild. All these things they found on their war expeditions and brought them here and planted them and thus they abound here, but he does not know where they first found the potato.

The mythology of the Iroquois is full of allusions to corn, its cultivation and uses. The story of its origin from the breasts of the mother of the two spirits, previously referred to, is generally accepted as the proper version, but there are other stories which, however, are regarded simply as *gaga"*, or amusement tales, rather than religious explanations. One story relates that an orphaned nephew who had been adopted by an eccentric uncle with strange habits thought that he would discover how his uncle obtained food. He pretended to be asleep and looking through a peephole in his skin coverlet found that the old man had a strange lot of nuts fastened on a stick (a corncob). Cautiously removing a nut (kernel) he placed it in a small pot of water and making some mysterious passes over it as he crooned a mysterious song, he caused the vessel to expand to a great size and fill with a delicious food. The next day the old man went on a journey to a distant gorge and the young man determined to try the experiment which he had seen his uncle perform. He shelled all the corn from the cob, threw it in the pot, sang and motioned until the pot swelled up so large that it filled the house and burst the walls. A great mound was formed and when the old man returned he cried out in dismay, "You have killed me," and gave as his reason that he was the custodian of the corn which

was the only ear in the country, the remainder being in the possession of a ferocious company of women who killed by their very glances. Beasts and serpents guarded the path to their houses and as there was nothing else to eat the nephew and uncle must starve. The nephew laughed and set out to conquer all the difficulties. The story of his conquest of all these things is detailed and exciting. However, he chased the women up a tree and made them promise to deliver up the corn, which they did and the hero went home, stepping disdainfully over the carcasses of monsters and serpents. Since then corn has been plentiful.

Beauchamp refers to this tale which he found among the Onondaga but thinks it of European origin. Hewett in his *Cosmology*[1] gives this tale substantially as outlined above. The reference in the tale to the nuts on the stick has given some Iroquois the idea that chestnuts were meant and the story is given as the origin of chestnuts. The Seneca names for chestnuts and corn kernels are not dissimilar, the former being o'nīs'tă' and the latter o'nie'stă'.

Dr Beauchamp relates another tale which he had from Joseph Lyon, an Onondaga. A fine young man lived on a small hill, so the story runs, and being lonely he desired to marry some faithful, agreeable maiden. With his long flowing robes and tasseled plumes he lifted up his voice and sang, "Say it, say it, some one I will marry." He kept up his song day after day and at last there came a fair maiden, arrayed in a flowing green mantle over which were fastened beautiful yellow bells. "I have come to marry you," she smiled, but the tall young warrior responded, "No, you are not the one, you wander too much from home and run over the ground so fast that I can not keep you by my side." The poor rejected pumpkin maiden went sorrowfully away and floating after her came the echo of the song, "Some one I will marry."

One morning a tall slender maiden appeared drawn toward the singer by the magic of the song (which even we of these degenerate days must confess, though even inaudible, is a song that attracts). The maiden was covered with clusters of flowers and gracefully dangling leaves. The tall young man needed but to look and there was an immediate consciousness of affinity. The two embraced each other and to this day in the Indian's cornfield the two plants are inseparable. The cornstalk bean twines around her lover still.

[1] Bureau of Ethnology Rep't. 1903.

Dr Beauchamp adds that they are inseparable even in death " for the beans make a part of Indian corn bread." [1]

Mrs Converse relates a very pretty story of the three plant sisters in her *Myths and Legends.*[2] The writer has heard the same story. The corn, however, is a female and not a pining, singing lover. The corn plant in the old days produced a heavy grain rich in an oil which was most delicious. The Evil Minded spirit, jealous of the good gifts which the Good Minded had given *men beings* watched his opportunity to capture the spirit of the corn. Detaining the spirit he sent his messengers to blight the fields. The sun sent a ray of light to liberate the captive spirit but ever since corn has been less productive and required greater care. Morgan also mentions this legend in the *League.*[3]

There is an allusion to the spirit of the corn plant in the code of Handsome Lake, as follows:

It was a bright day when I went into the planted field and alone I wandered in the planted field and it was the time of the second hoeing. Suddenly a damsel appeared and threw her arms about my neck and as she clasped me she spoke saying " When you leave this world for the new world above it is our wish to follow you." I looked for the damsel but saw only the long leaves of corn twining round my shoulders. And then I understood that it was the spirit of the corn who had spoken, she the sustainer of life. [*See* Code of Ga-nio-dai-o,[4] § 48, ¶ 2]

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[1] Jour. Am. Folk Lore, p. 195.

[2] Converse. Myths and Legends of the Iroquois; ed. by A. C. Parker. N. Y. State Mus. Bul. 125.

[3] Morgan. League of the Iroquois. Rochester 1854. p. 161.

[4] Manuscript in N. Y. State Library, trans. by Parker, A. C. and Bluesky, William.

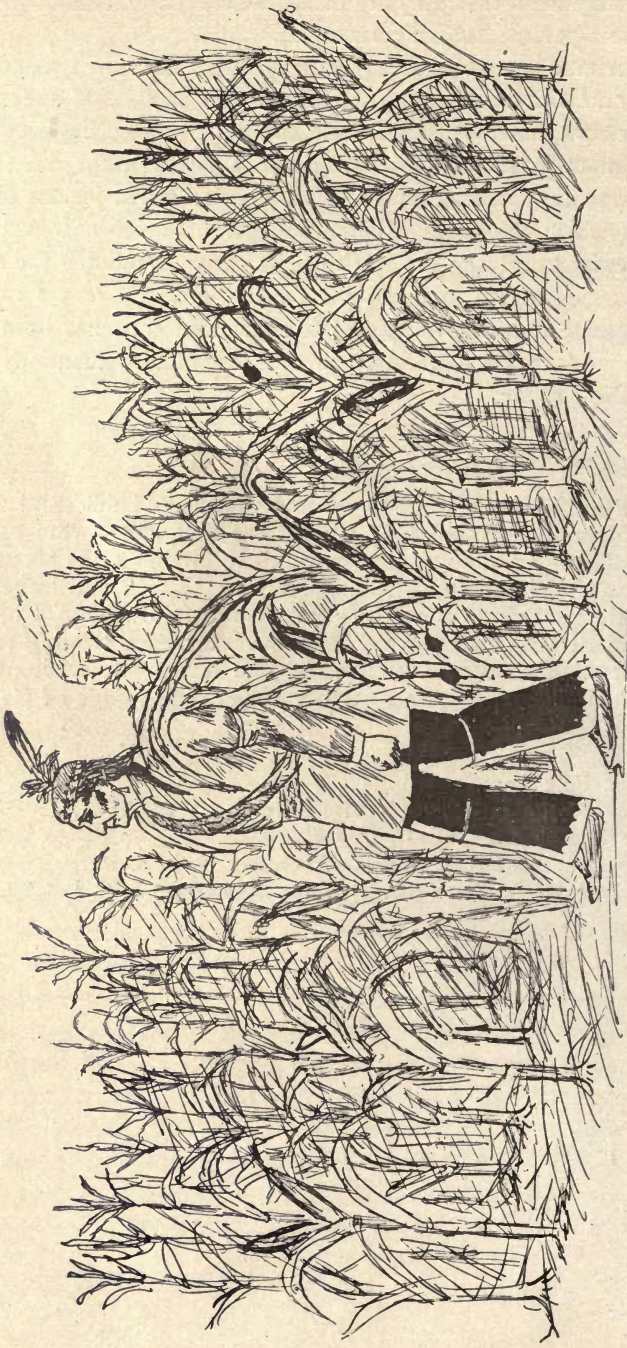
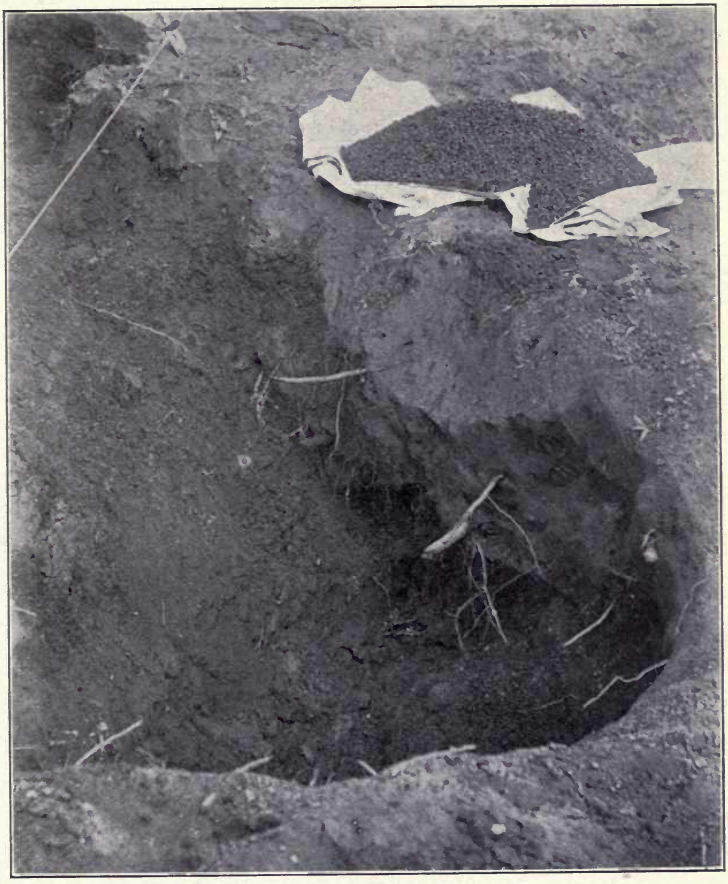
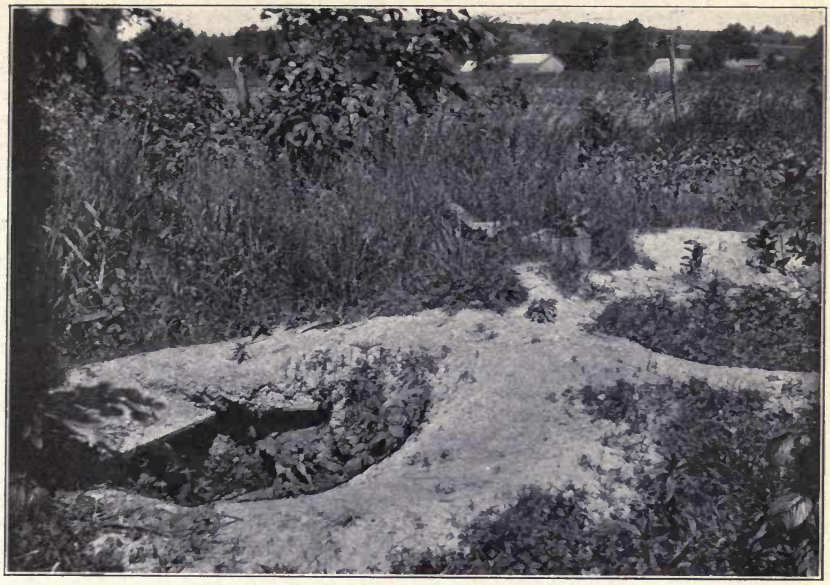


Fig. 4 The Spirit of the Corn speaking to Handsome Lake, the Seneca prophet. (From a drawing by Jesse Cornplanter, a Seneca boy artist)

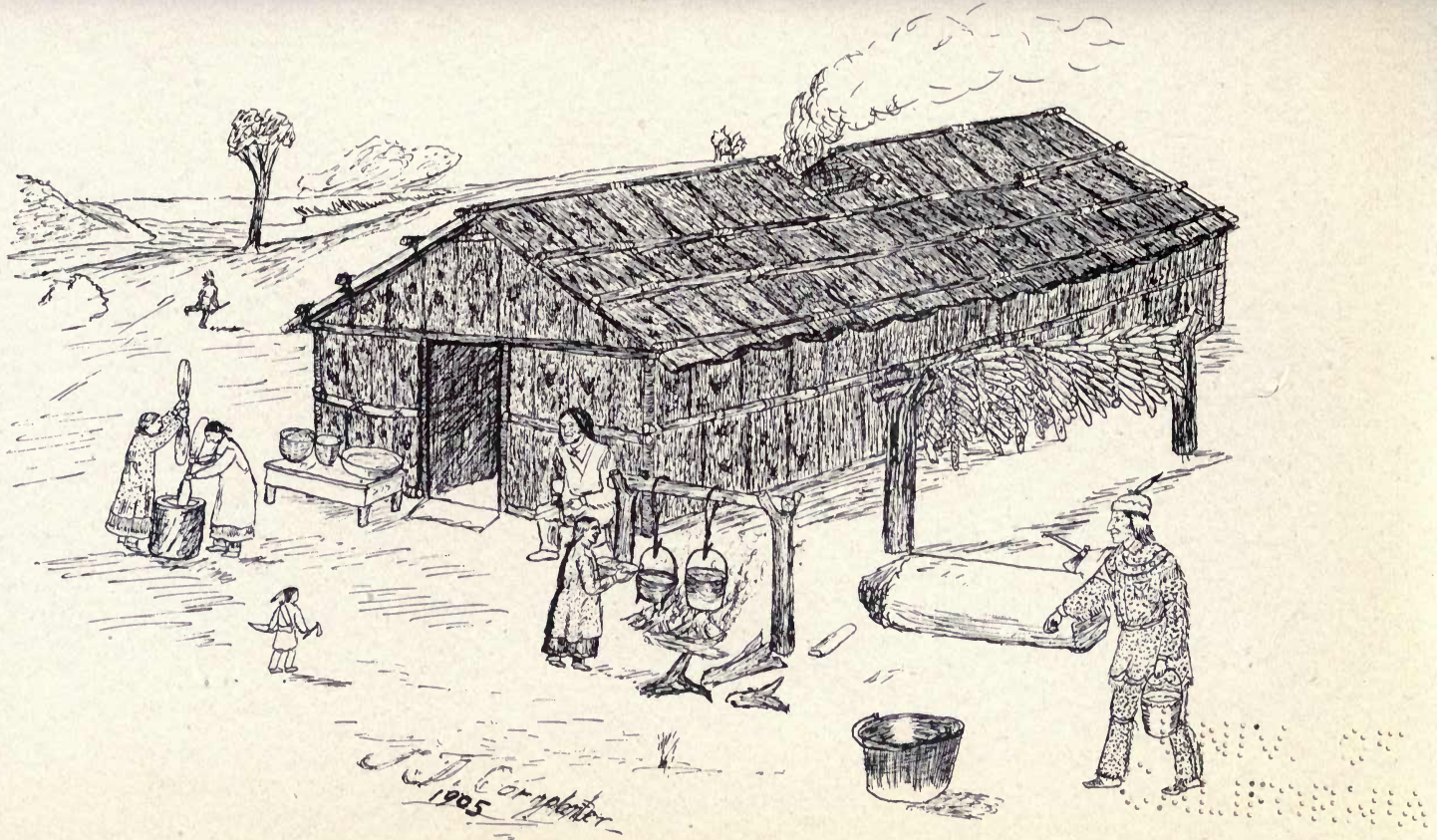
Plate 6



Corn pit excavated by Harrington and Parker, 1903 (Peabody Museum of Archeology and Ethnology Expedition) on the Silverheel's site, Brant township, Erie county, N. Y.



1 Vegetable storage pits near Chief E. Cornplanter's house, Cattaraugus Reservation. 2 Seneca corncrib on the James Sandy place, Cattaraugus Reservation



Scenes about an Iroquois bark house, from a drawing by Jesse Cornplanter, a Seneca youth. Note the manner in which the corn braids are placed on the drying pole.

V VARIETIES OF MAIZE USED BY THE IROQUOIS AND OTHER EASTERN INDIANS

1 **Varieties mentioned by historians.** Few authorities agree as to the varieties of Indian corn. Beverly[1] mentions four "sorts" among the Virginia Indians, two of which he says are early ripe and two late ripe. He describes the four varieties carefully and ends by saying that his description is without respect to what he calls the "accidental differences in color, some being blue, some red, some yellow, some white and some streaked." He continues that the real difference is determined by the "plumpness or shriveling of the grain." To him the smooth early ripe corn was flint corn and the "other . . . with a dent on the back of the grain . . . they call *she*-corn." This is probably the *Poketawes* of the Powhatan Indians.

In Harris's *Discoveries*[2] is another description of corn giving the variety of colors as "red, white, yellow, blue, green and black and some speckled and striped but the white and yellow are most common."[3]

Thomas Hariot in his *Brief and True Report,* reports[4] the "divers colors" as red, white, yellow and blue which in the light of the descriptions of his contemporaries would seem to make his report true but not the whole truth.

Morgan[5] is even more unsatisfactory in his descriptions and records

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[1] Beverly. Virginia, p. 126.

[2] Pinkerton. Voyages and Travels, 12:242.

[3] ". . . maise or Indian corn, which is not our pease in taste, but grows in a great ear or head as big as the handle of a large horse whip, having from three hundred to seven hundred grains in one ear, and sometimes one grain produces two or three such ears or heads; it is of various colours, red, white, yellow, blue, green and black, and some speckled and striped, but the white and yellow are most common; the stalk is as thick as an ordinary walking cane, and grows six or eight feet high, in joints, having a sweet juice in it, of which a syrup is sometimes made, and from every joint there grow long leaves in the shape of sedge leaves." *Ibid.* p. 242.

[4] Pagatowr, a kind of grain so called by the inhabitants; the same is called mayze, Englishmen call it Guinywheat or Turkey-wheat, according to the names of the countries from whence the like has been brought. The grain is about the bigness of our ordinary English pease and not much different in form and shape; but of divers colors, some white, some red, some yellow and some blue. All of these yield a very white and sweet flour being used according to his kind, it maketh a very good bread." Hariot. Reprint. N. Y. 1872. p. 13–16.

[5] League of the Iroquois, p. 370.

only three kinds of corn among the Seneca. He enumerates them as white, O-na-o-ga-ant, red, Tic-ne, and white flint, Ha-go-wa. These were the varieties which he collected and sent the State Cabinet (Museum) in 1850.

It is difficult to say what kind of corn Columbus saw on the island which he discovered, but we may be reasonably sure that Cartier mentioned the white flint corn when he described the corn of the Hochelagans. Morgan[1] mentions this as the bread corn of the Seneca mistaking it for the white Tuscarora or squaw corn.

Sweet corn was long known to the Indians and its seed was first obtained by Sullivan's soldiers from the Seneca fields on the Susquehanna.[2]

Purple or blue corn is mentioned in the Journal of Lieut. Erkuries Beatly, an officer under Sullivan. In describing the events of Friday the 3d of September he says ". . . the Indians had just left their kettles on the fire boiling fine corn and beans which we got, but what was most remarkable — the corn was all purple . . ."

Esquire Johnson, an aged Seneca chief, in an interview with Mrs Laura Wright in 1879 said, ". . . They brought it from the south, also various kinds of corn black, red and squaw corn. . . All these things they found on their war expeditions and brought them here and planted them and thus they abound." The object of Iroquois raids, according to many of the old Indians, was to get new vegetables and slaves as well as to subjugate insubordinate tribes.

Dent corn, with the Iroquois (Seneca), is called ono'dja, *tooth*. Tradition relates that this is a western form derived from Sandusky Iroquois in Ohio.

The writer has conducted a lengthy inquiry as to the varieties of corn cultivated by the Iroquois during the last 100 years and the result is embodied in the list, which is found below.[3] At the present day while they conserve the forms with a zeal that has in it a religious and patriotic sentiment, they also cultivate the new varieties with equal ardor for in the modern types is found the corn which produces the most money in the markets.

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[1] *Ibid.* p. 370.

[2] *Cf.* Journal of Capt. Richard Begnall.

[3] *Cf.* Harrington. Seneca Corn Foods, Am. Anthropologist, new ser. v. 10, no. 4, p. 575, 576. Four varieties are mentioned.

2 Varieties of corn used by the Iroquois

Zea mays amylacea, soft corns

Tuscarora or Squaw, Onä'oñga^{n}= [1] *white corn*
Tuscarora short eared, Onyuñ'gwĭktă'= *growing over the tip*
Purple soft, Oso^{n}gwŭdji' = *purple*
Red soft, gwĕ^{n}dä'ä = *red*

Zea mays indurata, flint corns

Hominy or flint, dionĕo''stäte'=the corn glistens
Hominy or flint, long eared, hĕ''kowă
Calico, { yodjisto'goñnyi = *it spotted is*
{ deyuneo^{n}'de^{n}iŭs = mixed colors
Yellow, djitgwä^{n}'ä^{n} hĕ''kowă = yellow hĕ''kowă

Zea mays saccharata, sweet corns

Sweet, diyut'gotnogwi = *puckered corn*
Black sweet, oso^{n}gwud'dji deutgo^{n}'negaidĕ = *black puckers*

Zea mays everta, pod corn

Red pop, gwĕ^{n}''dä'ä wata'toñgwus = red, *it bursts*
White pop, wata'toñgwus = *it bursts*

Zea mays (variety ?), pod corn

Sacred corn, onä'o^{n}wĕ = original corn

The Mohawks cultivate some of these varieties now. Mr William Loft, a Mohawk Indian of the Six Nations Reservation in Canada, gives the Mohawk names for the following:

Tuscarora, ono^{n}staga^{n}'rha
Tuscarora, short, ono^{n}staoan'nal
Sweet corn, degon'derho^{n}wix
Hominy or white flint, onust'teoñwe'
Hominy, longeared, ga'hrades
Yellow, o'jinegwa''onuste'
Purple, orhon'ya'
Husk or pod, oo^{n}'na^{t}
Pop, wadada'gwas oniuste'

[1] Seneca terminology.

VI CORN CULTIVATION TERMINOLOGY[1]

1 The process of growing

	SENECA	ENGLISH
a	Onä'o'	Corn
b	waeeyŭnt'to'	She plants
c	ohwĕⁿo'dadyiĕ'	It is just forming sprouts
d	oga''hwäodaⁿ	It has sprouted
e	otgaä'hät	The blade begins to appear
f	otga'ähät	The blade has appeared
g	deyuähă'o	The blade is already out
h	ogwäⁿ'däädyiĕ'	The stalk begins to appear
i	ogwäⁿ'dää'e'	The stalk is fully out
j	oge''odadyie'	It is beginning to silk
k	owäⁿ'dă'	The ears are out
l	o'geot	It has silked out
m	ogwäⁿdŭ'äe', ogwäⁿ'däⁿe'	The tassels are fully out
n	ono''gwaat	It is in the milk
o	dĕju'göⁿsäät	It is no longer in the milk
p	oweäⁿdäädyĕ', owĕⁿdädyĕ'	The ears are beginning to set
q	onĕ'oda'dyiĕ'	The kernels are setting on the cob
r	hadi'nonyoⁿcos	They are husking (indefinite as to method)
s	yestä'änyoⁿnyano'	She is braiding
t	dŭstaⁿ'shoni	It is braided
u	gasdäⁿt'shudoho'	It is hung over a pole
v	ganoⁿ'gadi'	It is strung along a pole

2 Terminology of cultivation

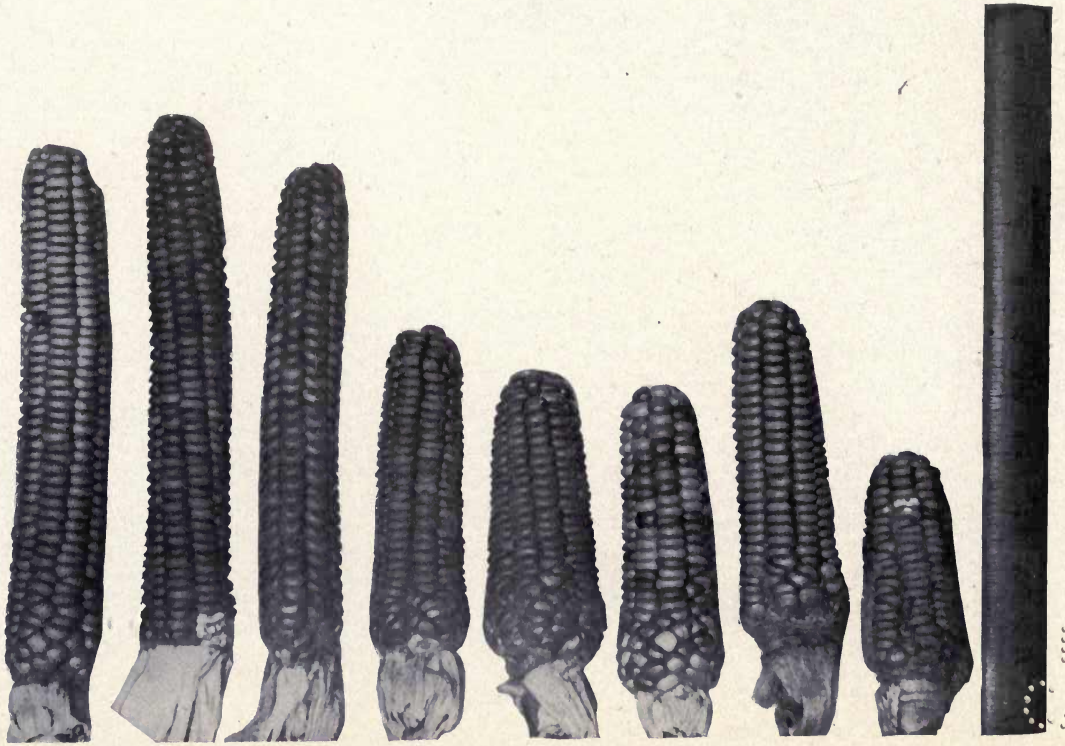
a	waĕ'yuntto'	She plants
b	yeeo'do'gwŭs	She weeds
c	deyonanyaoh, or deyo'wĕnnyē'	She stirs up the earth
d	wae'oaoⁿ, or waeä	She hills it up

3 Parts of corn

a	oea'	Leaves
b	odjoⁿ'wa'sa	Leaves of corn
c	oaya', oe'ä'	Stalk

[1] Based upon manuscript lexicon of Rev. Asher Wright. For the sake of uniformity the Wright system of orthography has been changed to that used in the body of this work.

Plate 9



Varieties of Iroquois corn. From left to right the ears are: 1 Tuscarora. 2, 3 Red. 4, 5 Purple. 6 Calico. 7 White flint. 8 Short-eared calico. There are seven other varieties cultivated as native corn. Specimens are one third natural size.

d ono^{n}''gwa^{n}'a'	Cob
e gagosswa''ge', ogoishă''ge	Butt of cob (meaning nose)
f oji'jut	Tassels
g onäo onius'ta or o'nis'ta'	Kernels
h onyo'nia'	Husk
i oaya okdayä, or ok'te'ä	Roots
j okta'a	Hulls
k ogai'tă'	Waste matter
l onäo'a'wĕn'niăsă'	Germ = heart
m ogŭdjidä'	Pollen when it comes off
n ganäoñgwe'	Seed corn
o o''gio^{n}t	Silk

VII UTENSILS EMPLOYED IN THE PREPARATION OF CORN FOR FOOD

The implements and utensils employed for the planting, cultivating and harvesting and the preparation of corn for food embraced the larger part of Iroquois domestic furniture. To a large extent many of the old-time corn utensils are still made and used by the Iroquois who prefer the "old way" and it is surprising to find that even the Christianized Iroquois, who generally live in communities away from their "pagan" brothers, cling to their corn mortars and the other articles which go with them. Today on all the Iroquois reservations both in New York and Canada the corn articles form the great part of their Indian material, and in fact constitute much of their aboriginality. As far as the writer can learn this same observation applies to all of the Indian tribes or remnants of such east of the Mississippi river.

Corn mortars are still made in the ancient way by burning out the hollow.

The men probably made most of the bark and wooden dishes[1] and carved the spoons and paddles while the women made the baskets and sieves.

Hennepin writing on this subject remarks: "When the Savages are about to make Wooden Dishes, Porringers or Spoons, they form the Wood to their purpose with their Stone Hatchets, make it hollow with their Coles out of the Fire and scrape them afterward with Beavers Teeth for to polish them.[2]

[1] *See* Jesuit Relations, 23:55, 13:265; Lawson. Carolina, p. 208.
[2] Hennepin. Voyage, p. 103.

Large kettle, Gano^{n}''djowanĕ'. Anciently large clay vessels were used. Later brass or copper kettles obtained from the whites were used. The use of clay vessels was early noticed by travelers[1] among the Indians of eastern North America. There are several good descriptions of the methods of pottery making, references to the use of the vessels for cooking and several illustrations of them [*see* fig. 15]. It seems most probable from these early accounts and illustrations that the clay kettles were placed directly over the fire, though perhaps supported by three or four stones properly arranged. Schoolcraft, however, illustrates one suspended over the fire. The writer once found a clay vessel in a fire pit with the remains of the fire about it and four or five pieces of angular shale at the bottom as a supporting base. There are several illustrations depicting this method in old works.

The coming of the traders with brass kettles was an event in the history of Indian cooking. It enlarged their capacity for cooking food in quantities. As brass kettles became common with them the smaller clay vessels passed out of use and were made but rarely. In this way the art gradually became forgotten.

Among the Seneca the writer found several persons who remembered hearing in their youth how the vessels were made. They asserted that clay was thus occasionally employed up to the middle of the last century. The Seneca seem to have conserved the art[2] at any rate for some time after their settlement at Tonawanda, Allegany and Cattaraugus.

The use of brass kettles among the Iroquois is still found, some of the more conservative seeming to prefer them [*see* pl. 10], but the majority now use iron or the more modern enameled ware pots.

Wooden mortar, Ga''niga''ta.[3] The corn mortar was made of the wood of the trunk of a niiu''gägwasā, *pepperidge tree* or ogo'wä.

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[1] These vessels are so strong that they do not crack when on the fire without water inside, as ours do, but at the same time they can not stand continued moisture and cold water long without becoming fragile and breaking at any slight knocks that any one may give them but otherwise they are very durable." Sagard. Histoire du Canada. 1638. Tross ed. Paris 1866. p. 260.

[2] *Cf* Harrington. Last of the Iroquois Potters. N. Y. State Mus. Rep't of Director. 1908.

[3] Ga'ni'ga' in Mohawk.

Sebastien Cramoisy in his relations (1634–36) said " . . . we have learned by experience that our sagamites are better pounded in a wooden mortar in the fashion of the Savages than ground within the mill. I believe it is because the mill makes the flour too fine." [*See* Jesuit Relations. Thwaite's ed. v. 8]

black oak. To conform to the proportions specified by custom the log was reduced to a diameter of 20 inches and then a section 22 inches long was cut or sawed off. A fire was built in the center of the end naturally uppermost and when it had eaten its way into the block for half an inch or thereabouts, the charcoal was carefully scraped out to give a fresh surface to a new fire which ate its way still deeper. The process was repeated until the bowlike hollow was of the desired depth, generally about 12 inches.[1] In this hollow was placed the corn to be pulverized. The relative values of mortars depended on their freedom from cracking and the grinding quality of the wood. The use of the mortar[2] and pestle is shown in plates 11, 12 and 20. In the same illustrations is shown the corn strung or braided for convenience in handling, after the old Indian style now universally adopted by farmers.

The wooden mortar and pestle are found among most of the eastern Indians. The styles and shapes differed greatly. The Cherokee, for example, had a shallow saucerlike depression in the top of their mortars and a socket in the center. Their pestles were bulbous at the top but the grinding end was small and of a size designed to fit the socket loosely. As the meal was pounded it rose to the top and settled around the "saucer" top where it could easily be swept or scooped into a receptacle. Cherokee mortars like the Iroquois were made upright. The Pottawatomie, Chippewa and some others had horizontal mortars, that is the cavity was made in the side of the mortar log. The Seminole not content with one cavity made three or four in the side of a fallen tree. The Nanticoke made their mortars vase-shaped with a supporting base and the Choctaw chopped their mortar vases to a point to hold them stationary. Dr Speck found an odd mortar among the Connecticut Mohegan. It had been carved so as to resemble somewhat an hour glass. He was not able

[1] Adair describes the process as follows, ". . . cautiously burned a large log to a proper level and length, placed fire a-top, and with mortar [clay] around it, in order to give the utensil proper form, and when the fire was extinguished or occasion required, they chopped the inside with their stone instruments, patiently continuing the slow process till they finished the machine to the intended purpose." Adair, p. 416. Lond. 1725. *Cf.* DePratz. Paris 1724, 2:177.

[2] "The Indians always used mortars instead of mills and had them with almost every other convenience when first opened to trade." Adair, p. 416.

"They pound it in a hollow tree." De Vries. Second Voyage. Hoorn 1655, p. 107. N. Y. Hist. Soc. Col. Ser. 2, v. 3, pt 1.

to obtain it because the tribe held it as communal property and looked upon it with a feeling of veneration. The pestles differ as much as the mortars, some being mere clublike sticks.

Pestle, Hĕtge'o' or He'tgĕn''khă'[1] The Seneca words mean *upper part* and are derived from hetgää'gwa, meaning *upper*. The pestle is generally of hard maple wood about 48 inches long. It is shaped the same on both ends and either may be used for pounding, although one end is generally chosen and always used thereafter. The other end serves as a weight that adds to the power of the arm in making the stroke. The mortar and pestle are used in pulverizing corn for soups, hominy, puddings and bread, and are by far the most important utensils used in preparing corn foods made from meal.

Stone mortar and pestle, Yeĭstonniă''tă'. Up to within the time of the Civil War it was a common thing for the Seneca, as well as others of the Iroquois, to use stone mortars and pestles or rather mullers. Some of these mortars were so small that they could easily be carried in a basket without inconvenience. Corn could be cracked for soup by a single blow or by rubbing once or twice it could be reduced to meal. Many of the older people remember these "stone mills" by which their odjis'to^{n}nondă', *cracked corn hominy* was made[2] [*see* fig. 5]

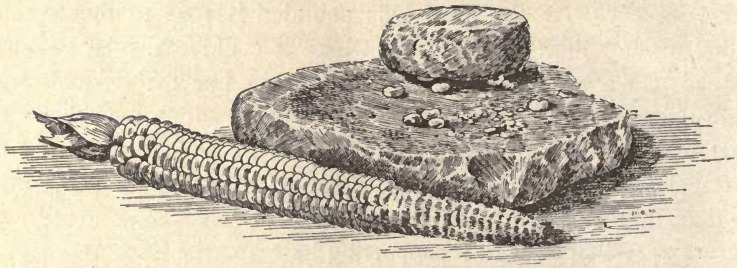


Fig. 5 Seneca stone mortar and muller. The mortar is 8 inches in length

M. R. Harrington found one of these mortars still in use by the Oneida in Madison county and described it in the American *Anthropologist*.[3]

[1] Ga'ni'ga' in Mohawk.

[2] *Cf.* Jesuit Relations, 1716–27, v. 67:213. They crush the corn between two stones reducing it to a meal; afterward they make of it a porridge which they sometimes season with fat or with dried fish.

[3] New Ser. v. 10, no. 4. 1908. p. 579.

Plate 10

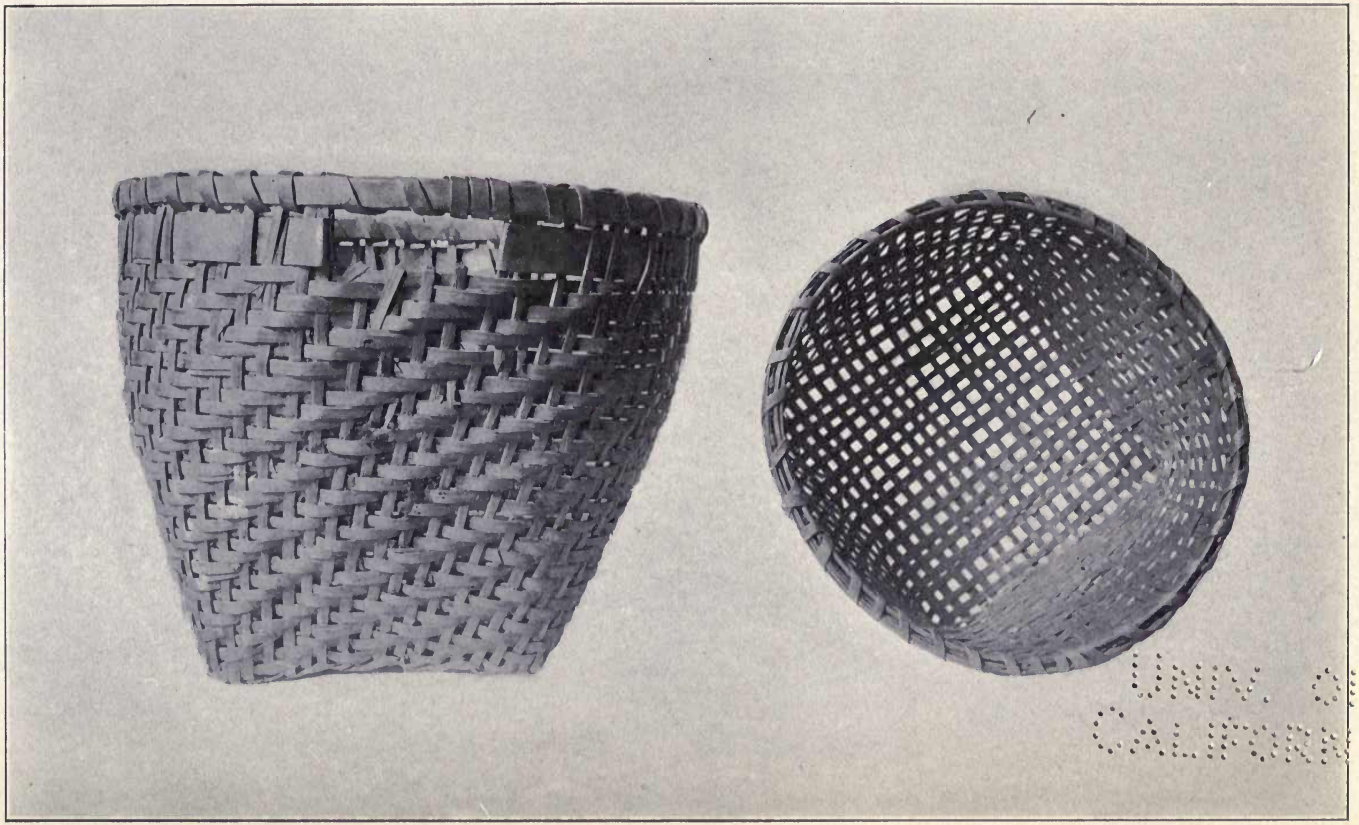
Interior of the Canadian Seneca ceremonial cook house, Grand River Reservation. Note the large brass kettle. From a photograph by the author

Plate 11

Iroquois corn mortar and pestle. The mortar is 25 inches high.
(Museum collection)

Plate 12

Feast makers at the New York Seneca midwinter festival, February 1909. The costumes and other articles except the corn mortar are now in the State Museum collections.



Hulling and hominy baskets. Illustrations are one fifth actual size. A. C. Parker, collector, 1908

Mullers and mealing slabs are commonly found on Iroquois village sites and sometimes may be picked up near log cabin sites on the present reservations. The Iroquois probably did not use the long cylindrical pestles to any great extent, as did the New York Algonquins as late as the Revolutionary War.

Mr Harrington found one of these cylindrical pestles among the descendants of the Shinnecock at Southampton, Long Island, together with a small wooden mortar. The Minisink Historical Society has one which was given an early settler by one of the Minsis before the Revolutionary War.

Hulling basket, Yegai"toätă'.[1] The Seneca word for hulling basket means *it washes corn.* This basket is woven with tight sides

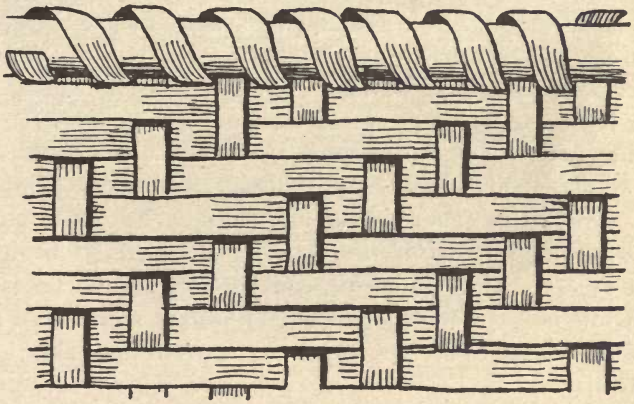


Fig. 6 Technic of the hulling basket

and a coarse sievelike bottom. It is about 18 inches deep and as many broad at the top tapering down to 12 inches at the bottom. In this basket is put squaw or hominy corn after it has been boiled in weak lye to loosen the hulls and outer skin. The basket of corn is then soused up and down in a large tub of water until all the hulls are free and have floated off in the many rinse waters.

The details of weaving the hulling basket are shown in figure 6 and the basket itself in plate 13. Hulling baskets are made in four styles; without handles of any sort; with handles made by openings in the body of the basket just below the rim; by raised loop handles made by fastening pieces of bent wood through the rim and into the body of the basket; and by a raised handle that arches from side to side. For the various styles see figure 7. This type of basket is

[1] Yegahredaⁿda'kwa' in Mohawk.

widely found among the eastern Indians although the Iroquois basket seems to have been higher.

The hominy sifter is woven in the same manner and the State Museum has specimens from the Cherokee and Shawnee which are

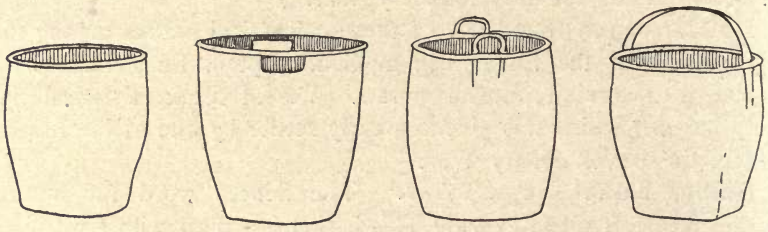


Fig. 7 Various forms of hulling baskets

similar in all details to the Iroquois baskets. Both of these peoples of course have been in contact with the Iroquois at different periods. The Delaware sifting and washing baskets were often made of shreds of bark but the Iroquois preferred the inner splints of the black ash.

Hominy sifter, Oniius'tawanĕs.[1] The Seneca term means *coarse kernels.* This basket is of the same weave as the hulling basket. It is a foot square at the top and tapers down to 10 inches at the bottom. The bottom is sievelike, the openings being about $\frac{3}{16}$ inch square. The hominy corn cracked in the mortar is sifted through this basket and the coarser grains that remain are thrown back in the mortar to be repounded and resifted until all are of the requisite size.

Meal sifter,[2] **Niu'nyo^{n}'sthasā'.**[3] The Indian word is derived from niwa'a, *small,* and oniius'tă' *kernels.* In size and shape this basket is like the hominy sifter. The splints of which it is woven, however, are very fine, being about $\frac{1}{16}$ inch wide. Except for decorative purposes, no baskets were ever woven finer. The niu'nyo^{n}s'thasā' was used for sifting corn meal for bread puddings. Sometimes it was used to sift other things, such as maple sugar, salt, seeds etc. So much labor was required to make one of these meal sifters that many of the Iroquois ceased to weave them when cheap wire sieves could be obtained, the price of the meal sieve basket being as high as $1 [*see* fig. 8].

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[1] Yuno^{n}'owa'nĕs in Mohawk.

[2] "They have little baskets which they call *notassen,* and which are made of a kind of hemp the same as fig frails, which they make to serve as sieves." De Vries, p. 187.

[3] Niga'te'sera, flour sieve, in Mohawk.

Metallic meal sifters, now sometimes used, are regarded as inferior for sifting the Indian prepared meal because they give a metallic

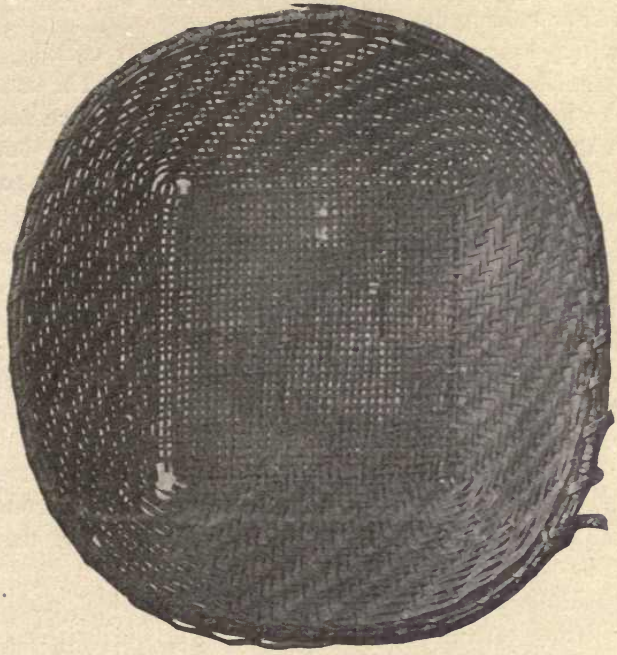

Fig. 8 Meal sifter. Specimen is 12 inches in diameter and 4 inches deep. The mesh is $\frac{3}{16}$ inch.

taste to the food. It is said that the basket sieve makes lighter flour.

Ash sifter, Ogä′yeo^{n}to′.[1] The ash sifter was a small basket about 6 inches square at the top, 5 inches square or less at the bottom and about 3 inches deep. It was woven like the hominy sifter, the sieve bottom having somewhat smaller openings.

Ash sifters are rare in collections illustrating the series of baskets used in the preparation of corn for food. One in the State Museum is very old and was collected by Morgan at Tonawanda in 1851.

Bark bread bowl, Gŭsno^{n}găoñ′wà′.[2] This dish is made from bark peeled in the spring or the early summer time, bent into the required shape and bound around the edges with a hoop of ash sewed on with a cord of inner elm or basswood bark. The usual dimen-

[1] Yo^{n}ga^{n}rawakto′ is the Mohawk form.
[2] Ga″sna′gahoñ′wa′ in Mohawk.

sions are from 1 to 2 feet in diameter and from 4 to 9 inches deep. Some bowls are elliptical in shape. These bark bowls were used for mixing the corn meal into loaves previous to boiling and afterward for holding the finished loaf.

The writer has seen these bark bowls used for cooking vessels, heated stones being thrown into the liquid within it. The bark vessel can also be put over an outdoor earthen or stone fireplace and water heated if the flames are kept away from the rim. Bark bowls are still used in some parts of the Seneca reservations as dish pans, sap tubs, wash pans, etc. Bark dishes are easily made and their first use may be referred to very early times. Two of these bowls are shown in plate 14. Morgan collected a series of bark vessels for the State Museum in 1854 and some of the specimens are still on exhibition.

Wooden bread bowl, Owĕⁿgä'gă'oñ'wà'.[1] Sometimes instead of a bark dish a wooden one was used for a bread bowl. It was of about the same relative size and carved from pine or maple. The form naturally differed somewhat from the bark bowls, but in general outline followed them. Some of these bowls are carved from maple knots, or knots from other trees. Usually, however, they were carved from softer wood.

Wide paddle, Gatgŭn'yasshuwa'nĕ.[2] The wide paddle was used for lifting corn bread from the kettle in which it was boiled. Some of these paddles are beautifully carved and ornamented. The wide bread paddle took two forms, the round blade and the rectangular bladed paddle [*see* pl. 16]. A feature which distinguishes a lifting from a stirring paddle is the hole made in the middle of the blade. The holes are either round or heart-shaped.

Narrow paddle, Nigat'gwünyashäa'.[3] This paddle was used for stirring boiling soups and hulled corn.

Both wide and narrow paddles were carved from some hard wood, preferably some variety of maple. Some are decorated with carvings of phallic symbols. Such designs are regarded as sacred, in the Iroquois religion, and are never looked upon with levity. The carving of paddles gave opportunity for the carver to display his best genius. Chains were carved from the solid wood of the paddle handle and balls cut in barred receptacles [*see* pl. 16, fig. 3]. Even some of the plainer forms had decorations made by carving a series of small triangles arranged in figures on the handle.

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[1] Oyĕn'de'ⁿgaonⁿwa' in Mohawk.
[2] Gagawe"tserhowanĕ' in Mohawk.
[3] Nigagawĕ"tsĕlha in Mohawk.

Within recent years this work of making and decorating these kitchen utensils has been the work of the men. No doubt they thought that a fine paddle would furnish a proper incentive for the making of a good soup.

Great dipping spoons, Ato′gwasshoⁿwa′ne‘.[1] For dipping hulled corn soup, or in fact any other soup from a kettle, a large dipping spoon was generally used when there was one at hand. In form it was like the common eating spoon used by the Iroquois but very much larger, the bowl being about a foot in diameter. At present these large spoons are very rare. One specimen that the writer obtained for the American Museum of Natural History is said to have been used for years in council meetings on the Genesee Reservation, especially at the Green Corn Festivals. There are several large dipping spoons in the State Museum, but they are now not to be found in use on the New York Indian reservations. The specimen shown in the illustration, figure 1, plate 17, has a shorter handle than most.

The great dipping spoons were used for apportioning out the contents of the great feast cauldrons. The activity of collectors and the greater convenience of civilized articles has brought the tin dipper into greater prominence.

Deer jaw scraper, Yigăsshoⁿ′gäya″to’.[2] This implement is a very rare one. It is simply one of the rami of a deer's lower jaw and

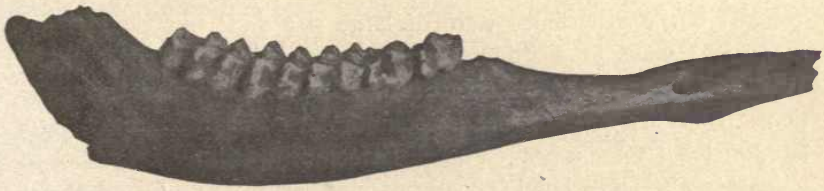

Fig. 9 Deer jaw scraper for green corn. Specimen is about 8 inches long

is complete without trimming or finishing in any way. The jaw was held by the anterior toothless portion and with the sharp back teeth the green corn was scraped from the cob. The name of the implement, Yigăsshoⁿ′gäya″to’, is derived from ogoⁿ′sä, *green corn,* and yigoweⁿ′to’, *it scrapes.*

The Seneca housewife when she uses the jaw scraper, with characteristic humor, says, "I am letting the deer chew the corn first for me."

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[1] Wadogwa′tserhowānĕ‘ in Mohawk.

[2] Yĕⁿnos′stogāⁿyatha’ in Mohawk.

Another method of bruising green corn on the cob was to place a flat grinding stone in a large wooden or bark bowl, hold the ear on the stone with one hand and mash the unripe kernels with a milling stone held in the other hand. The bruised corn was then brushed from the mortar stone and the kernels that yet adhered to the cob, scraped off. When enough material had been thus prepared the lower stone was removed from the bowl and the mashed corn removed for cooking.

Dried corn was milled much in the same way. A handful of the corn was placed on the millstone and pulverized with the miller. The cracked corn would fall into the bowl and be pounded again and again until enough hominy or meal was obtained. The Seneca abandoned this method about 50 years ago, although a few have used it in recent times when a wooden mortar was not accessible.

The writer collected a deer jaw scraper in 1903 for the American Museum of Natural History and believes his description and specimen the first on record. Mr Harrington later collected and described the deer jaw scraper in Canada, corroborating the writer's data.[1]

Sagard in his *Voyages to the Hurons* describes another jaw method of removing green corn from the cob but says the jaws were those of the old women, the maidens and children who prepared the mass. He remarks that he had no liking for the food.

Eating bowl, Gă'oñ'wă'. Eating bowls[2] were made from bark or wood and were of various shapes.

Feast bowls oftentimes were of large size and were ornamented in various ways to distinguish them from ordinary dishes. There are two interesting specimens of feast bowls in the State collections. Both are Mohawk bowls from Grand River, Can. One has a handle styled after a beaver tail, a beaver's tail being the symbol of a feast. The other bowl is made of elm bark. It was used at one of the Five Nation's councils some 10 years ago. The interior is divided into five sections by painted lines of yellow radiating from the center. At the angles of the radiating division lines are beaver tails, five in all. Upon the inner raised sides of the bowl is painted in red the names of the five nations and in black beneath the modern council names: Ga-ne-a-ga-o-no, Mohawk, Owner of the Flint; Guegweh-o-no, Onondaga, On the Hill; Nun-da-wah-o-no, Seneca, The

[1] *See also* Parker, A. C. N. Y. State Mus. Bul. 117, p. 544.

[2] "Their dishes are wooden platters of sweet timber." Raleigh, in Hakluyt's Voyages. Lond. 1600. 3:304.

Great Hill People; O-na-ote-kah-o-no, Oneida, The People of the Stone. The label reads as follows:

(CANADIAN) MOHAWK BREAD BOWL.

This decoration is a fac-simile of the old bowl taken by the Mohawks when they left the League and departed with Brant.

5 yellow lines — The sun's path guarding the 5 nations. 5 Beaver tails — the beaver tail soup symbol. At the 5 Fire councils each Fire (or nation) was compelled to dip his soup from its own national division of the bowl. The dipping of the spoon into each portion allotted to its Fire signified union and fidelity. This bowl, obtained in Canada, was decorated by a Seneca Indian Artist on the Cattaraugus Reservation, June 12, 1899.

Harriet Maxwell Converse
Cattaraugus Reservation, N. Y.
June 15, 1899.

Ordinary eating bowls were smaller than feast bowls and were often carved with great nicety from maple, oak or pepperidge knots. After carving and polishing the bowls were dyed in a solution made from hemlock roots. Continual scouring soon reduced the bowl to a high polish and the grease which it absorbed gave it an attractive luster which contributed in a large measure to preserve the wood. Bowls which have been in the State Museum for 50 years still yield grease if scraped with a penknife.

Eating bowls are usually round but many of the older forms have suggestions of handles oppositely placed. Some of these handles go beyond mere suggestions and take the form of a bird's head and tail or two facing human effigies.[1] Bowls are shown in plates 14 and 15.

Wooden spoons, Atog'washä.[2] Great care was exercised in carving wooden spoons. As a rule, each individual had his own

Fig. 10 Wooden spoon from bottom of Black lake. Collected by E. R. Burmaster, 1910. Specimen is 15 inches in length.

spoon which he recognized by the animal or bird carved on the handle. In olden times, the dream animal or clan totem was usually carved upon the handle, but specimens of later times nearly always

[1] *See* Harrington. Some Unusual Iroquois Specimens. Am. Anthropologist. new ser. 11:85.

[2] Niwadoⁿkwatserha, in Mohawk.

have the conventionalized forms of birds carved upon them. In rare instances the figure was carved from a separate piece of wood and attached to the spoon handle with a peg.

The wood chosen for spoons was usually curly maple knots, although knots of other woods were valued and often used. The Iroquois preferred to have their spoons of a dark color and as the "spoon wood" was white or yellow, they used dyes to darken them. Hemlock bark or roots were boiled in water until the liquid was of the proper shade, which was dark red, and then the spoon

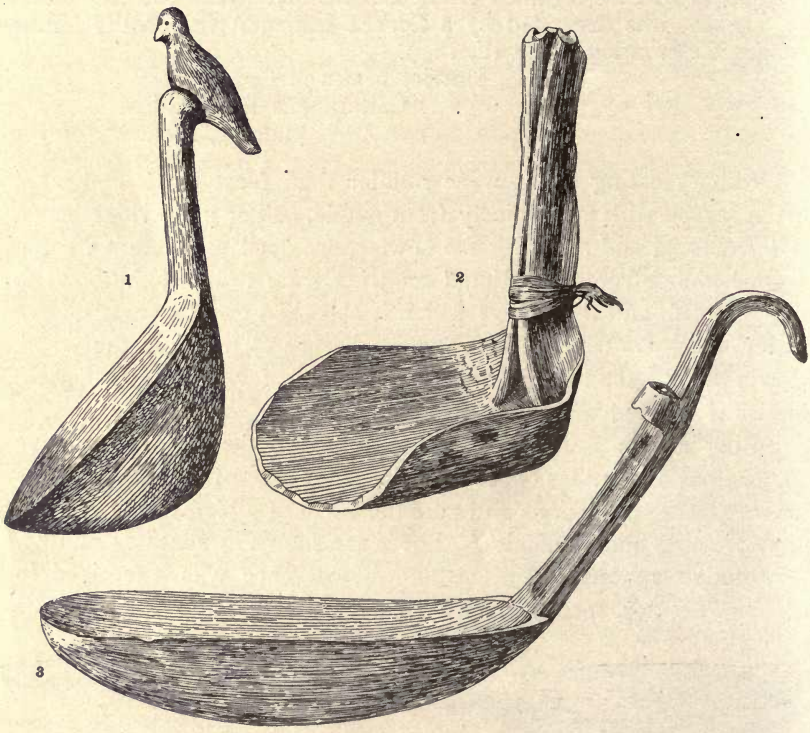


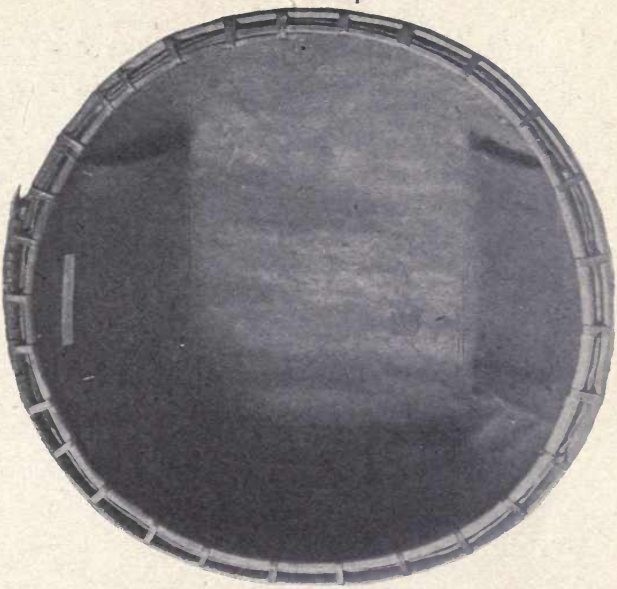
Fig. 11 Types of Seneca and Onondaga eating spoons. 1, wooden spoon; 2, bark ladle; 3, buffalo horn spoon. Number 3 was collected by E. R. Burmaster, 1910, from the Alec John family who had preserved it as an heirloom for many years.

was plunged in and boiled with the dye until it had become thoroughly saturated with the dye and had partaken of the desired color. By use and time the spoon became almost as black as ebony and took a high polish.

Spoons were sometimes shaped from elm bark but these were not durable. They were scoops rather than ladles or spoons.

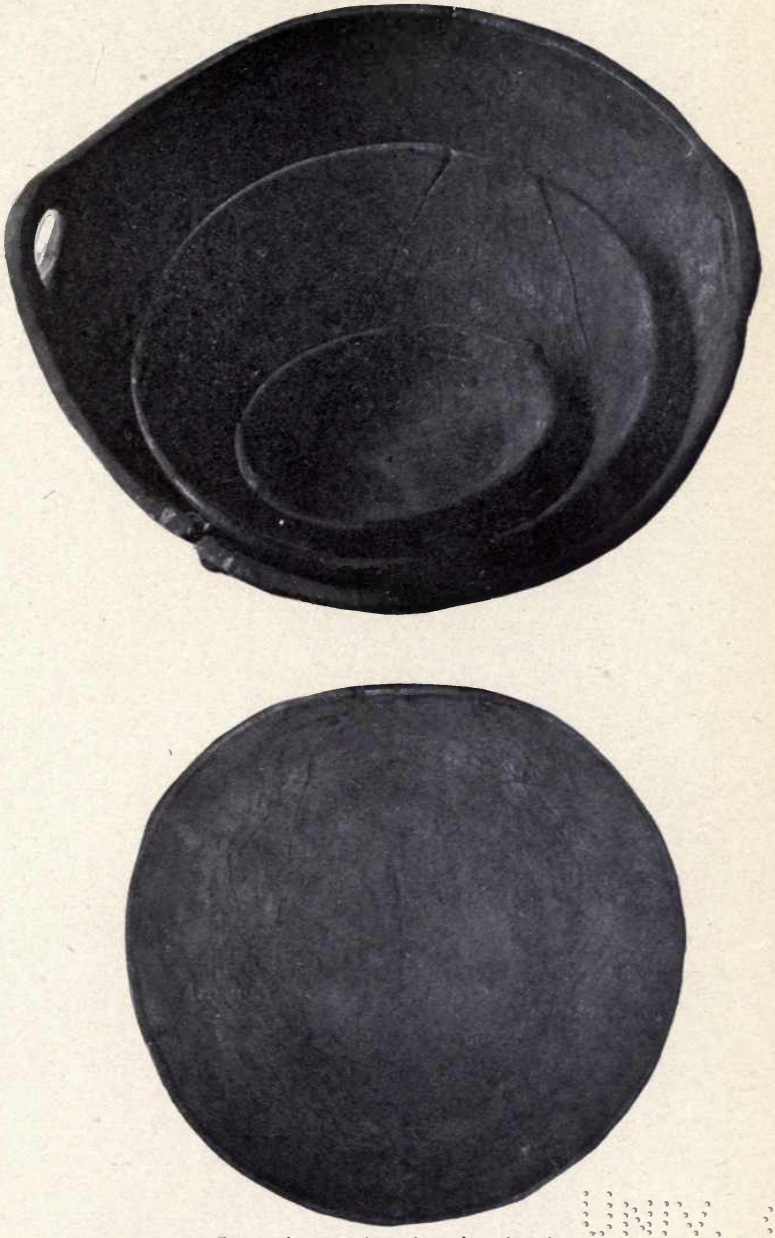
The Iroquois did not readily abandon the use of wooden spoons and in some districts they are still used. The Indians say that food

Plate 14

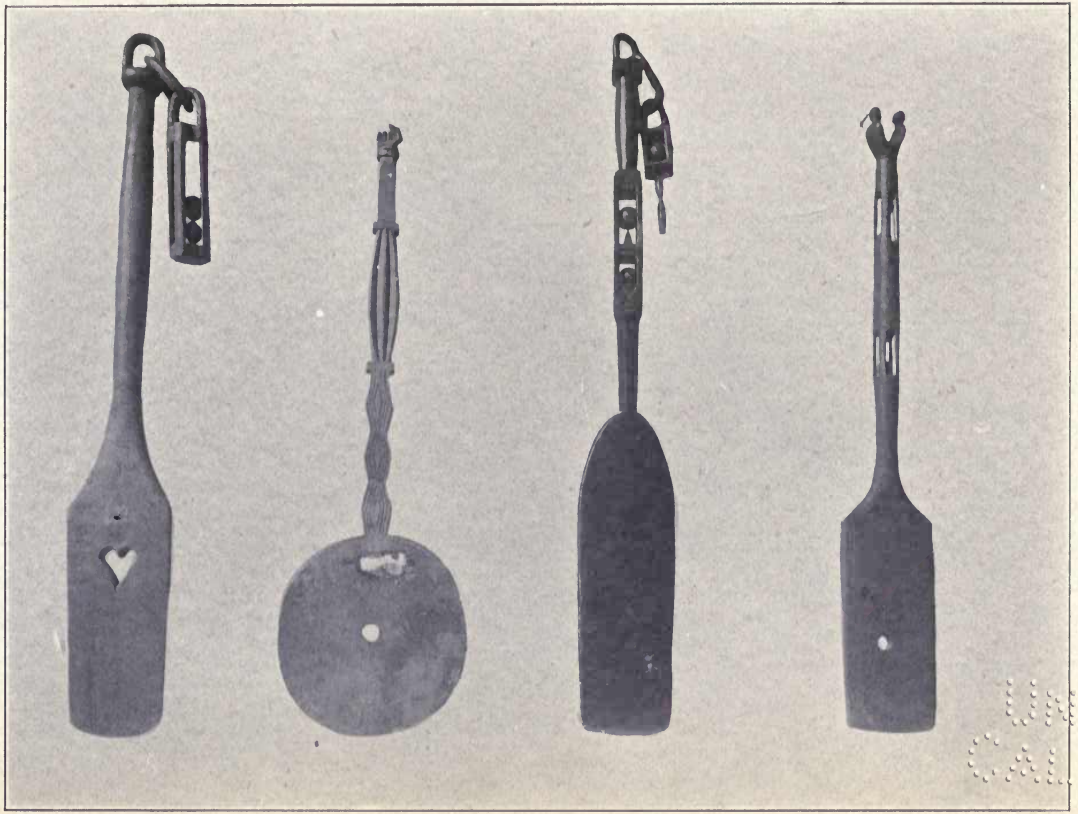


1 Seneca bark bowl. 2 Mohawk feast bowl used at the Six Nations annual meetings. The beaver tail symbols refer to a section in the Iroquois Constitution and symbolize peace and plenty. Illustrations are one sixth actual size. Converse collection

Plate 15



Iroquois bread and eating bowls.

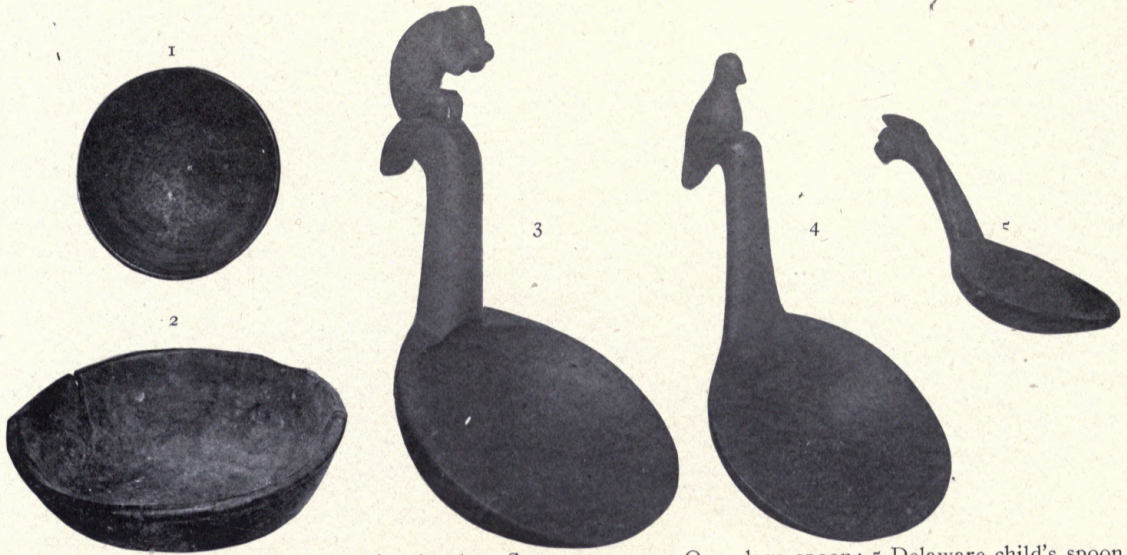


Iroquois soup and bread paddles and turners. State Museum collection

Plate 17

1 Seneca feast dipping spoon. 2 Mohawk beaver tail national feast bowl. Illustrations are about one fifth actual size. Mrs H. M. Converse collection in State Museum

Plate 18



1 Onondaga salt bowl; 2 Seneca eating bowl; 3 Seneca spoon; 4 Onondaga spoon; 5 Delaware child's spoon

Elm bark planting baskets. 1 Seneca double-pocket basket, Morgan collection. 2 Delaware planting basket, collected by M. R. Harrington for the State Museum. Illustrations are one fourth size of specimens.

tastes much better when eaten from one and those who have not used them for some years express a longing to employ them again, recalling with evident pleasure the days when they ate from an "atog'washä."[1]

The favorite decorations for the tops of the handles were ducks, pigeons and sleeping swans. The tails of the birds projecting backward afforded a good hold for the hand and at the same time acted as a hook that prevented the spoon from slipping into the bowl when it was rested within it [*see* pl. 18].

The shape of the wooden spoon bowl is significant and seems to suggest that it was copied from the form of a clam shell or from a gourd spoon, these forms perhaps being the prototypes. Various types of spoons are shown in figure 11 and plate 18.

Husk salt bottle, Ojike'ta'hdä'wa. While not employed directly as a utensil for preparing corn foods, the husk salt bottle was used as a receptacle for the seasoning substances used for giving an added flavor to soups, bread etc. made from corn. The bottle was made of corn husk ingeniously woven. The stopper was a section of a corncob. Corn husk bottles sometimes were woven so tightly, it is said that they would hold water. On the other hand the bottles were valued for their property of keeping the salt dry, the outer husk absorbing and holding the moisture before it reached the salt within [*see* fig. 12].

Fig. 12 Husk salt bottle. Cut is ½ size of specimen.

The Iroquois have used these salt bottles within the last 10 years but only a few are now to be found.

The Iroquois say that they have not always used salt in the quantities which they now do and say that it has a debilitating effect upon them.

Parched corn sieve, Yŭndĕshoyondagwathä. This utensil was first described by Morgan[2] who collected a single specimen for the

[1] Beverly in describing the eating customs of the Virginia Indians, says, "The Spoons which they eat with do generally hold half a pint; and they laugh at the English for using small ones, which they must be forced to carry so often to their Mouths, and their Arms are in Danger of being tir'd before their Belly."

[2] *See* Morgan. Fabrics of the Iroquois. State Cabinet of Nat. Hist. Fifth An. Rep't 1852. p. 91.

State Museum in 1850. It consists of strips of wooden splints a little more than an $\frac{1}{8}$ inch wide laid longitudinally, bound together with basswood cords and fastened tightly at either end making a canoe-shaped basket. It was used for sifting the ashes from parched corn and for sifting out the unburst kernels from pop corn. The writer has not been able to collect another old specimen of this basket and was told that the hominy sieve is now used instead.

The corn sieve is an interesting survival of a form of basket (the melon basket) now obsolete among the Canadian and New York Iroquois.[1] It has been preserved, however, among the Cherokee and is common among other southern tribes. Morgan's figure in the Fifth Museum Report is a poor illustration of the specimen and has confused several writers who have attempted to copy it. A better drawing is shown in the accompanying cut, figure 13.

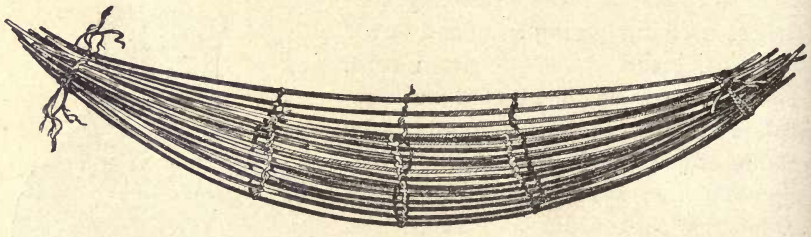


Fig. 13 Popcorn sieve. Morgan specimen. This type is a survival of the melon basket now obsolete among the Iroquois except perhaps the Oneida. Specimen is 20 inches long.

Planting and harvesting baskets

Planting basket, Yŭndŭshinun'dakhwă'.[2] This is the small basket used for containing the seed corn for planting. The basket is generally tied to the waist so as to leave both hands free for dropping the seed and covering it with the hoe.

One planting basket in the museum collection is made of bark doubled in such a maner as to leave pockets on either side and a handle in the middle [*see* fig. 1, pl. 19].

Carrying basket, Ye'nīstĕⁿnĕk'wistă' or Yŭntge"dastha.[3] This basket is generally tied by a carrying strap, gŭsha'ā, to the head or chest and the ears of corn thrown over the shoulders into it as they were picked. The use of this basket is shown in plate 2, fig. 1.

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[1] Harrington collected some interesting forms from the Oneida, two of which were acquired by the State Museum.

[2] Yuⁿterhaha'wida"kwa' in Mohawk.

[3] Yoⁿda"terhagehtslakwa in Mohawk.

VIII COOKING AND EATING CUSTOMS

1 **Fire making.** The precolonial method of producing fire was of course by friction and there were a number of ways for this

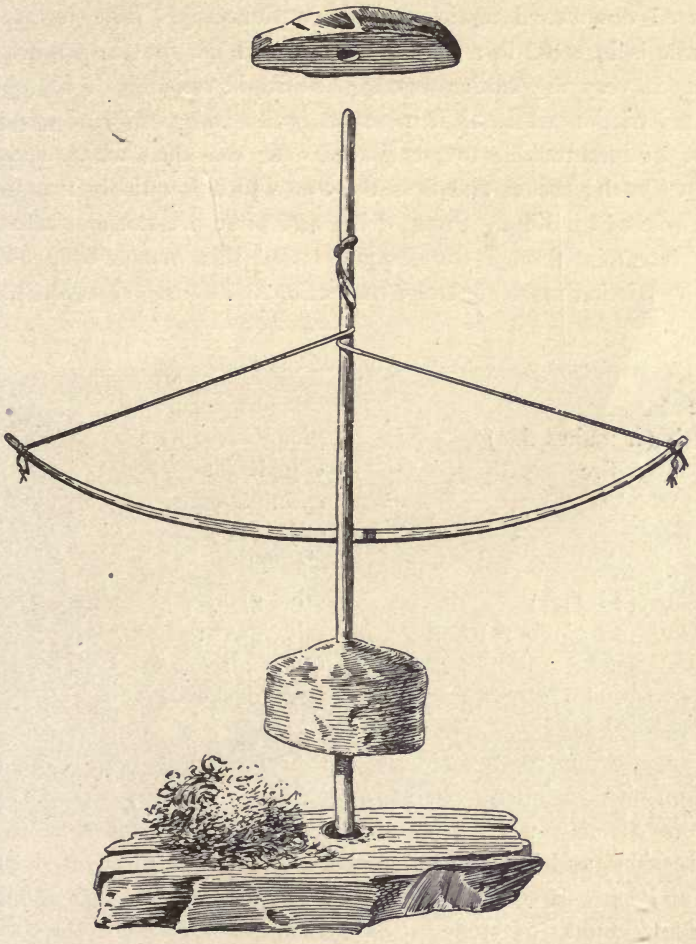

Fig. 14 Iroquois pump drill used for producing fire by friction. Collected by L. H. Morgan, 1850. Specimen is 18 inches high.

purpose. The most characteristic contrivance was the pump drill.[1] Morgan figured a pump drill in his report[2] to the Regents of the University. A pump drill is simply a weighted spindle of resinous

[1] Mason. Origin of Inventions, p. 88.

[2] N. Y. State Cab. Nat. Hist. Third An. Rep't. Albany 1851. p. 88.

wood to the top of which is fastened a very slack bow string, the bow hanging at right angles to the weight. By twisting up the string and then quickly pressing down on the bow a spinning motion is imparted to the spindle which immediately as the string unwinds, winds it up again in an opposite direction. The bow is then quickly pressed downward again and so continuously. The top of the spindle is inserted in a greased socket and the foot in a notch in a piece of very dry tinder wood. The rapid twirling of the spindle creates friction which as it increases ignites the powdered wood. A piece of inflammable tow is placed near this dust which suddenly ignites in the socket and fires the tow which is quickly transferred to a pile of kindling. Pump drills of course are not characteristically Iroquois, though the Iroquois used this means of producing fire by friction more generally than other methods [*see* fig. 14].[1]

TERMINOLOGY OF FIRE

Fire	ode'ka'
Match (it makes fire)	yiondĕkadä''kwa'
I make a fire	eñgade'gat
Fire wood	oyän'dă'
Charcoal	odjă^{n}'stă'
Ashes	o'gä''ä'
Smoke (in house)	odiä''gwä'
Smoke (out of doors)	odiä''gweot
Flame	o'do^{n}'kot
Bake or broil	waen'dasko^{n}dĕ

For cooking food anciently the fires were generally made in sunken pits, variously called fire pits, pots or sunken ovens.

Pots of clay were probably placed only in shallow saucerlike depressions and held up by stones. The writer discovered such a pot at Ripley in 1906. It stood upright in a pit and was supported by some chunks of stone. Charcoal lay about it as if the fire had been hastily smothered. Schoolcraft pictures a clay pot suspended from a tripod, but most explorers picture the position of the clay vessel as above described.

Pits often were heated to a good temperature, the embers raked aside and corn, squashes or other foods thrown in, covered with

[1] *See* Morgan League, p. 381.

cold ashes and allowed to bake by the heat that remained in the ground. Small pits were thus made in clay banks and beans and other vegetables boiled to perfection. The remains of these pit ovens are found by all field archeologists who have worked in New York.[1]

2 **Meals and hospitality.** The Iroquois in precolonial and even during early colonial times had but one regular meal each day. This was called sĕdétcinegwa, *morning meal,* and was eaten between 9 and 11 o'clock. Few of the eastern Indians had more than two regular meals each day, but this did not prevent any one from eating as many times and as much as he liked for food was always ready in every house at all times.[2]

The food for the day was usually cooked in the morning and kept warm all day. For special occasions, however, a meal could be cooked at any time, but as a rule an Iroquois household did not

Fig. 15 Drawing of an Indian and his wife at dinner, from Beverly's *Virginia.* The numbers refer to Beverly's description which is as follows; "1. Is their Pot boiling with Hominy and Fish in it. 2. Is a Bowl of Corn, which they gather up in their Fingers, to feed themselves. 3. The Tomahawk which he lays by at Dinner. 4. His Pocket, which is likewise stript off, that he may be at full liberty. 5. A Fish. 6. A Heap of roasting Ears, both ready for dressing. 7. A Gourd of Water. 8. A Cockle-Shell, which they sometimes use instead of a Spoon. 9. The Mat they sit on."

expect a family meal except in the morning. As every one had four or five hours exercise before this meal it was thoroughly enjoyed.

[1] *Cf.* Harrington. Mohawk Strongholds. Manuscript in N. Y. State Museum.

[2] *Cf.* Heckewelder, p. 193; Morgan. House Life, p. 99.

Large eaters were not looked upon with favor, but every one was supposed to satisfy his hunger.

The housewife announced that a meal was ready by exclaiming Hâu! Sĕdek'onĭ, and the guest when he had finished the meal always exclaimed with emphasis "Niawĕn" " meaning, *thanks are given.* This was supposed to be addressed to the Creator. As a response the host or hostess, the housewife or some member of the family would say "Niu'" meaning *it is well.* Neglect to use these words was supposed to indicate that the goddess of the harvest and the growth spirits or "the bounty of Providence" was not appreciated and that the eater was indifferent.

In apportioning a meal the housewife dipped the food from the kettle or took it from its receptacle and placed it in bark and wooden dishes, which she handed the men. They either sat on the floor or ground or stood along the wall as was most convenient. The women and children were then served. This old time custom still has its survival in the modern eating habits of the more primitive Iroquois. There are now tables and chairs and three regular meals, to be sure, but the women serve the men first and then, when the men have gone from the room, arrange the meal for themselves.

Regular meals two and three times a day did not come until the communal customs of the Iroquois had given way to the usages of modern civilization. Even then, as Morgan observes,[1] one of the difficulties was to change the old usage and accustom themselves to eating together. It came about, as this author says, with the abandonment of the communal houses and the establishment of single family houses where the food for the household was secured by the effort of the family alone.

Under the old régime food was kept ready for any one who might call for it at any time. The single meal of the late morning did not prevent any one from eating as many times as he pleased.

Springing from the law of communism came the law of common hospitality. Any one from anywhere could enter any house at any time if occupants were within, and be served with food. Indeed it was the duty of the housewife to offer food to every one that entered her door. If hungry the guest ate his fill but if he had already eaten he tasted the food as a compliment to the giver. A refusal to do this would have been an outright insult. There was never need for any one to go hungry or destitute, the unfortunate and

[1] Morgan. House Life, p. 99.

the lazy could avail themselves of the stores of the more fortunate and the more energetic. Neither begging nor laziness were encouraged, however, and the slightest indication of an imposition was rebuked in a stern manner.

Heckewelder explains this law of hospitality in a forcible manner. "They think that he (the Great Spirit), made the earth and all that it contains," he writes,[1] "that when he stocked the country that he gave them with plenty of game, it was not for the benefit of the few, but for all." This idea that the Creator gave of his bounty for the good of the entire body of people was one of the fundamental laws of the Iroquois. As air and rain were common so was everything else to be. Heckewelder expresses this when he continues, "Everything was given in common to the sons of men. Whatever liveth on land, whatsoever groweth out of the earth, and all that is in the rivers and waters flowing through the same, was given jointly to all, and every one is entitled to his share. From this principle hospitality flows as from its source. With them it was not a virtue but a strict duty; hence they are never in search of excuses to avoid giving, but freely supply their neighbors' wants from the stock prepared for their own use. They give and are hospitable to all without exception and will always share with each other and often with the stranger to the last morsel. They would rather lie down themselves on an empty stomach than have it laid to their charge that they had neglected their duty by not satisfying the wants of the stranger, the sick or the needy. The stranger has a claim to their hospitality, partly on account of his being at a distance from his family and friends, and partly because he has honored them with his visit and ought to leave them with a good impression on his mind; the sick and the poor because they have a right to be helped out of the common stock, for if the meat they are served with was taken from the woods it was common to all before the hunter took it; if corn and vegetables, it had grown out of the common ground, yet not by the power of men but by that of the Great Spirit."

When distinguished guests came into a community a great feast was prepared for them. Various French, Dutch and English writers who visited the Iroquois during the colonial period have written of these feasts and some of them describe the feasts in a vivid way. Sometimes the food was unpalatable to European

[1] Heckewelder. Indian Nations, p. 101.

taste and sometimes howsoever unpalatable it was eaten with great gusto, so sharp a sauce does hunger give.

John Bartram, who made a trip from Philadelphia to Onondaga in the middle of the 18th century, with Conrad Weiser, Lewis Evans and Shickalmy, records in his *Observations*:[1]

> We lodged within 50 yards of a hunting cabin where there were two men, a squaw and a child. The men came to our fire, made us a present of some venison and invited Mr Weiser, Shickalmy and his son to a feast at their cabin. It is incumbent on those who partake of a feast of this sort to eat all that comes to their share or burn it. Now Weiser being a traveler was entitled to a double share, but being not very well, was forced to take the benefit of a liberty indulged him of eating by proxy, and he called me. But both being unable to cope with it, Evans came to our assistance notwithstanding which we were hard set to get down the neck and throat, for these were allotted to us. And now we had experienced the utmost bounds of their indulgence, for Lewis, ignorant of the ceremony of throwing a bone to the dog, though hungry dogs are generally nimble, the Indian, more nimble, laid hold of it first and committed it to the fire, religiously covering it over with hot ashes. This seemed to be a kind of offering, perhaps first fruits to the Almighty Power to crave future success in the approaching hunting season.

Instances of the hospitality of the Iroquois toward the whites and Indians could be cited at great length,[2] with but one result, that of confirming the statement that hospitality was an established usage. The Indians were often greatly surprised to find that on their visits to white settlements they were not accorded the same privilege, and thought the whites rude and uncivil people. "They are not even familiar with the common rules of civility which our mothers teach us in infancy," said one Indian in expressing his surprise.

The Iroquois were not great eaters, that is to say, they seldom gorged themselves with food at their private meals or at feasts, except perhaps for ceremonial reasons. To do so ordinarily would be a religious offense and destroy the capacity to withstand hunger. Children were trained to eat frugally and taught that overeating was far worse than undereating. They were warned that gluttons would be caught by a monster known as Sago'dăkwŭs who would humiliate them in a most terrible manner if he found that they were gourmands.

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[1] Bartram. Observations. Lond. 1751. p. 24.

[2] *See* Morgan. House Life, p. 45–62.

The large appetites of white men who visited them was often a matter of surprise to the Indians who entertained them. Morgan[1] commenting on this says that a white man consumed and wasted five times as much as an Indian required. In a footnote[2] he quotes Robertson as writing that the appetite of the Spaniards appeared insatiably voracious; and that they affirmed that one Spaniard devoured more food in a day than was sufficient for 10 Americans (Indians).

The food and eating customs of the eastern Indians are described by various early writers with some conflict of opinion, but in general their system of free hospitality has the commendation of the majority of writers.[3]

There were and still are among the Iroquois, innumerable ways of combining foods and several ways of cooking each variety. Nearly all the early travelers expressed themselves as impressed with the number of ways of preparing corn and enumerate from 20 to 40 methods, though some are not so explicit.[4]

TERMINOLOGY

Food	gŭk'wa'
Breakfast (early morning meal)	sĕde'tciane'gwa
Midday meal	hă'de'wĕnishä
Sunset meal	hegä''gwaane'gwa'
Appetite	yeo^{n}kwan'owas
A glutton	ha'kowane'
(Come thou) eat (imper.)	seděko'ni
I eat	aga'dekoni
You eat	e^{n}sa'dĕkoni
Cook (she cooks)	yeko^{n}'nis
" (he cooks)	ha'ko^{n}'nis
Hanging crane	e^{n}sä''ĕnondăt
Kettle hook	adŭs'ha
Oven	yontä'gonda'gwa'ge

[1] Morgan. House Life of the American Aborigines, p. 60.

[2] *Ibid.* p. 61.

[3] *See* Lahontan, 2:11; Van der Donck. N. Y. Hist. Soc. Cols. v. 1, ser. 2, 192; Jesuit Relations, 67:141; Adair, p. 412; Bartram. Observations, p. 16, 59, 63; Smith. Virginia. Richmond ed. 1:83, 84; Heckewelder, p. 193; Morgan. House Life, 45 et seq.; Robertson. History of America, p. 178. N. Y. 1856.

[4] "Forty-two ways," Dumont. Memoirs sur La Louisiane. Paris 1753. 1:33–34. *Cf.* Loskiel, p. 67; Adair, p. 409; "40 methods," Boyle, Report for 1898; *cf.* Jesuit Relations, 10:103, "twenty ways."

IX FOODS PREPARED FROM CORN

Leaf bread tamales, oniă"tci'dă'. This is prepared from green corn. The kernels are cut or scraped from the cob and beaten to a milky paste in a mortar. The corn used for leaf cake tamales should be too hard for green corn good for boiling and eating on the cob. The paste will then be of the proper consistency. The paste is patted into shape and laid in a strip on one end of a broad corn leaf, the free half being doubled over the paste. Other leaves are folded over the first, the ends all projecting uniformly from one end for tying. The oniă"tci'dă' was then tied three times laterally and once transversely and dropped into boiling water. When cooked — cooking requires about 45 minutes — the wrappings are removed and the cake is eaten with sunflower or bear oil, though in these modern days bacon grease or butter are more in vogue. Oftentimes cooked beans are mixed with the mass before wrapping in the leaves. These impart their flavor and give variety.

Leaf cakes may be dried for winter's use if no beans have been used with the corn. In wrapping the leaf bread a bulbous shaped bundle is made resembling a large braid of hair doubled and tied, hence the name oniă"tci'dă', derived from yēnyă'tci'dot, *doubled braid of woman's hair.*

Heckewelder[1] describes this bread but says it is too sweet although the Indians consider it a delicate morsel. He says the mashed green corn is put in the corn blades with ladles.

Adair[2] in describing it remarks, "This sort of bread is very tempting to the taste, and reckoned most delicious by their strong palates."

David DeVries[3] writing of the dish says, "They make flat cakes of meal mixed with water, as large as a farthing cake in this country, and bake them in the ashes, first wrapping a vine or maize leaf around them.

Sagard in describing leaf cakes says that the Huron called it Andataroni. He describes the process of preparing it substantially as given above. He mentions that berries and beans are often added.[4]

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[1] Heckewelder, p. 195.

[2] Adair. North American Indians.

[3] Second Voyage. N. Y. Hist. Soc. Col. Ser. 2. v. 3, pt 1, p. 107. *Cf.* Vincent. History of Delaware. Phila. 1870. p. 74.

[4] Grand Voyage. Tross ed. p. 96.

Plate 20

Seneca woman pounding Tuscarora corn. Photograph by M. R. Harrington

These early citations are interesting because they prove how persistently the Iroquois have clung to the dishes of their ancestors.

Baked green corn,[1] **Ogon'sä'.** When the milk has set, Tuscarora and sweet corn is scraped from the cob and beaten to a paste in a mortar. This should be done just before the evening meal. After the housework is finished the housewife lines a large kettle with basswood leaves three deep. The corn paste is then dumped in up to two thirds the depth of the vessel. The top is smoothed down and covered by three layers of leaves. Cold ashes to a finger's depth are now thrown over the leaves and smoothed down. A small fire is built under the kettle which hangs suspended from a crane or tripod. Glowing charcoal is placed on the ashes at the top. The small fire is kept brisk and the coals at the top renewed three times. The cook may now retire for the night if her kettle hangs in a shielded place or in a fire pit. In the morning the ashes and top leaves are carefully removed and the baked corn dumped out. The odor of this steaming ogon'sä' is most appetizing and it is eaten greedily with grease or butter. For winter's use the caked mass is sliced and dried in the sun all day, taken in at night to prevent dew from spoiling it and dogs or night prowlers from taking too much of it, and set out again in the morning to allow the sun to complete the drying. The ogon'sä' is then ready to be stored away for the winter. When ready for use the winter's store of ogon'sä' was taken from storage and a sufficient quantity for a meal thrown in cold water and immediately put on the stove. Boiling for a little more than a half hour produces a delicious dish. Ogon'sä' was one of the favorite foods of the Iroquois and remains so to this day. An Onondaga or Seneca can hardly mention the name without showing that it brings memories of the pleasant repasts that it has afforded.

In recent years the corn paste is prepared with a potato masher in a chopping bowl, or by running the corn as cut from the cob through a food chopper. Baking is done in shallow dripping pans in the oven. The food so prepared, however, lacks a deliciousness that makes the older method still popular.

Boiled green corn, O'kni'stagaⁿ'o'.[2] This is simply the green corn on the cob with which we are all familiar. Tuscarora corn as well as sweet corn, however, was used with equal favor. It was

[1] This is the blé-grillé of the French.

[2] Ganossto'hoⁿ is the Mohawk equivalent.

eaten on the cob or scraped off and eaten in dishes. Sometimes the kernels were cut from the cob and boiled as a soup.

The Seneca name means delicious corn food, from o'nius'ta, *corn,* and oga$^{n'}$o^{n}, *delicious food.*

Fried green corn, Gagoñ's'ä ge''dā. This dish was prepared by scraping the green corn, in the milk, from the cob, mashing it in a mortar and either patting it into cakes or tossing it in a basket to make a loose light mass. The corn was then ready for frying. The older Indians say that the frying could be done in a clay kettle and that corn so prepared was especially good if cooked in bear oil.[1]

Succotash, Ogon'sä' ganon'dä.[2] Iroquois succotash was prepared much as is the modern form made by white people. The green corn cut or scraped from the cob was thrown in a pot of beans which had nearly been cooked and the mass cooked together until both ingredients were done. A sufficient quantity of salt and grease or oil was added for seasoning and flavor. The favorite corn for this dish was Tuscarora or sweet corn.

Baked cob-corn in the husk, Wades'kondŭk o'nis'ta. This was a popular way of preparing green corn on the cob. The ashes from the camp or hearth fire were brushed aside and a row of unhusked ears laid in the hot stones or ground. These were then covered with cold ashes. Embers were now heaped over and a hot fire built and continued until the corn beneath was thought sufficiently baked. Corn baked in this manner has a fine flavor and never becomes scorched.

Baked scraped corn, Ogo$^{n'}$sä' ohon'stä'.[3] The green corn is scraped from the cob with a deer's jaw or knife, pounded in a mortar or mashed in a wooden bowl with a stone, patted into cakes, sprinkled with dry meal and baked in small dishes. For baking in the ashes the cakes are wrapped in husk and covered with ashes. Embers are heaped over and a brisk fire built, this being kept going until the cakes were considered baked.

Carver, the British traveler, in writing of his experiences among the aboriginal Americans, says of this dish ". . . better flavored bread I never ate in this country." In describing the preparation

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[1] Carr, quoting Carver's *Travels* (London 1778), notes, "We . . . cook our vegetables by themselves though formerly this was not the case for according to an old writer (Carver), when made with bear oil 'the fat moistens the pulse and renders it beyond comparison delicious.'"

[2] Onon'darha is the Mohawk name for succotash.

[3] O'gaserho'da is the Mohawk name.

of these cakes he said that they were ". . . made without the addition of any liquid by the milk that flows from them; and when it is effected they parcel it out into cakes and enclosing them with leaves place them in the hot embers where they soon bake."

Cracked undried corn, Odjis'tănondä. The ripened but not dry corn was shelled from the cob and smashed kernel by kernel on a flat stone, a muller being used as a crusher. The crushed corn was mixed with new harvested beans and boiled for nearly three hours. Salt was used as a seasoning and deer or bear meat mixed with the mass if desired (*see* fig. 5).

Boiled corn bread, Gagai'tē^{n}tâ^{n}'ä''kwă'.[1] For bread, purple, calico and the two hominy corns were used. After the corn was shelled it was boiled for from 15 to 30 minutes in a weak lye made of hard wood ashes and water. The lye solution in order to be of the proper consistency must be strong enough to bite the tongue when tasted. When the hulls and outer skins had been loosened, looking white and swelled, the corn was put in a hulling basket, taken to a brook or large tub, where it was thoroughly rinsed to free the kernels of any trace of lye and to wash off the loosened hulls and skins. The corn was then drained, thrown in a mortar and pulverized with a pestle. The granules were sifted through the meal sieve to make the meal fine and light. After this process the meal was mixed with boiling water and quickly molded into a flattened cake about 8 inches in diameter and 3 inches thick. The cake was then plunged into boiling water and cooked for nearly an hour. The object of mixing the meal with boiling water was to coagulate the starch and make the meal stick together. After the meal is mixed with the hot water and molded, the hands are plunged in cold water and rubbed over the loaf to give it a smooth glossy surface. When the loaf floats it is considered properly cooked. Sometimes the molded loaf is baked instead of boiled, specially for journeys. The loaf is buried in hot ashes and a roaring fire built over it until it is baked thoroughly. When it is to be eaten the ashes are washed off and slices cut from the loaf. The baked loaf if not wet will not become moldy like boiled bread and this is the approved form for hunting and war parties.

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[1] Gano^{n}'stoharhe ganada'rho^{n}, in Mohawk.

In the course of boiling some of the meal on the outside of the cake comes off, together with a quantity of starch and gluten, and mixes with the water. When the bread is sufficiently cooked this liquid is poured out in bowls and drunk as a tea. The Iroquois considered this gruel a great delicacy.

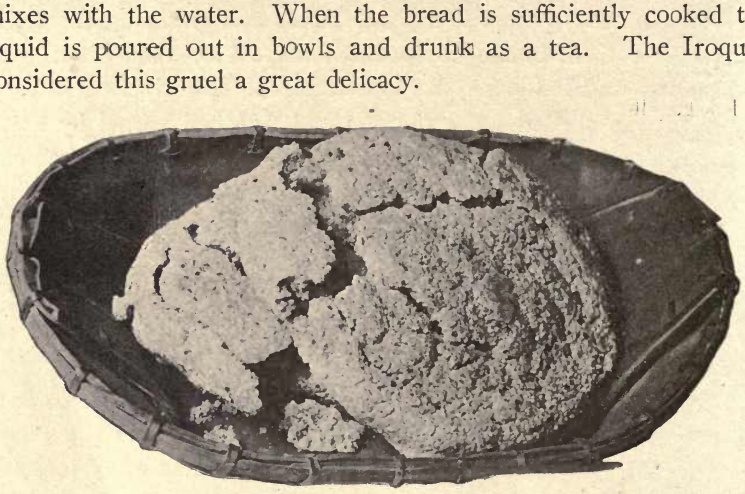

Fig. 16 Bark tray containing boiled bread, dried. Specimens ⅓ actual size. Seneca specimens collected 1908

Corn bread is fairly hard but readily crumbles when masticated. It is not dry, but moist and mealy. Before eating the cake it is sliced and spread with tallow or butter, bear or deer oil. It is a delicious food and considered highly nutritious. Often cooked cranberry beans or berries were mixed with the meal before boiling. These added to the flavor as well as nourishment.[1]

One of the best descriptions of boiled bread has been left us by Adair[2] who writes:

They have another sort of boiled bread which is mixed with beans or potatoes; they put on the soft corn till it begins to boil and pound it sufficiently fine; — their invention does not reach the use of any kind of milk. When the flour is stirred, and dried by the heat of the sun or fire, they sift it with sieves of different sizes, curiously made of the coarser or finer cane splinters. The thin cakes mixt with bear's oil, were formerly baked on thin broad stones placed over a fire, or on broad earthen bottoms fit for such a use, but now they use kettles. When they intend to bake great loaves, they make a strong

[1] "Some of the loaves were baked with nuts and dry blue berries and grains of the sunflower." *Van Curler's Diary, p.* 91.

[2] Adair. History of the American Indians. Lond. 1775. p. 407. *See also* Boyle. Ontario Arch. Rep't 1898. p. 188.

blazing fire, with short dry split wood on the hearth. When it is burnt down to coals they carefully rake them off to each side, and sweep away the remaining ashes; then they put their well kneaded broad loaf, first steeped in hot water, over the hearth, and an earthen basin above it, with the embers of coals atop. This method of baking is as clean and efficacious as could possibly be done in any oven; when they take it off they wash the loaf with warm water, and it soon becomes firm and very white. It is likewise very wholesome, and well tasted to any except the palate of an epicure.

Lafitau had no such pleasant impressions of the bread which would seem to bring him under the class of epicures. As a matter of fact white people of today regard the Iroquois boiled bread as a "well tasted" food, though a trifle heavy. The writer during his school days on the reservation often "swapped" his lunch of civilized viands with other Indian boys who were lucky enough to have half a loaf of boiled bread and a chunk of maple sugar or perhaps a leaf cake.

Beverly[1] describes the baking of corn bread in his *History of Virginia* and says that the Indians first covered the loaf with leaves and then with warm ashes over which were heaped the hot coals. The ash baked corn bread of the Indians has survived in the South as hoe cake, ash cake and "old fashioned" journey or Johnny cake.

Corn soup liquor, O'niyustagĭ'. The liquor in which the corn bread was boiled was carefully drained off and kept in jars or pots as a drink. It is said that the Indians were not fond of drinking water and preferred various beverages prepared from herbs or corn. One writer[2] in discussing this subject says: "Though in most of the Indian nations the water is good, because of their high situation, yet the traders very seldom drink any of it at home; for the women beat in mortars their flinty corn till all the husks are taken off, which having well sifted and fanned, they boil in large earthen pots; then straining off the thinnest part into a pot they mix it with cold water till it is sufficiently liquid for drinking; and when cold it is both pleasant and very nourishing; and is much liked even by genteel strangers."

Wedding bread, Go^{n}niă''tă' oă'kwa. Corn was prepared in the same manner as for bread but was wrapped in two balls with a short connecting neck like a handleless dumbbell wrapped in corn

[1] Beverly. Virginia, p. 151.
[2] Adair, p. 416.

husk and tied in the middle. It was then ready for boiling. To complete the cooking required about one hour.

Twenty-four of these cakes were taken by the girl's maternal grandmother (by blood or by clan appointment, if the maternal grandmother was dead) to the door of the maternal grandmother of an eligible male. The recipient, who had previously conferred with the donor, if she favors the alliance suggested by the gift, tastes the bread and notifies her daughter that her (the daughter's) son is desired to unite with a certain young woman in marriage by the grandmother of that young woman. The mother of the boy must submit to her mother's wish if she can offer no substantial objection. The boy's grandmother then makes 24 wedding cakes[1] and carries them to the girl's grandmother who then notifies her daughter that the girl must marry a certain man. If the suit is rejected at the first proposal the wedding cakes are left untouched and the humiliated donor must creep back and reclaim the cakes. My informant says the rejected cakes were never eaten, but probably reserved as ammunition with which to pelt the offending old dowager, who had given reasons to believe that the suit was smiled upon. The bounds of a cake recipe forbid further discussion.

Sagard found this bread among the Huron who, he says, called it Coinkia. He remarked that instead of being baked it was boiled. His description "deux balles jointes ensemble" makes the identity of the dish absolute.[2]

Early bread, Ganēo^{n}tē''do^{n}.[3] Before the corn was thoroughly dry in the autumn it was plucked for making early bread. The unhulled corn was mixed with a little water in a mortar and beaten to a paste instead of a meal. Loaves were molded by the hands from the paste and boiled. This bread was considered a great delicacy and valued especially as a food for invalids.

Early corn pudding, Ganeo^{n}tē''do^{n} odjis'kwa. The paste from the mortar, as described above, was sometimes drained, sifted and tossed into a wet meal. It was then thrown in boiling water and boiled down into a pudding.

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[1] Morgan. League, p. 322; *cf.* Sagard, p. 94, 136.

[2] ". . . excepté le pain mis et accommodé comme deux balles iointes ensemble, enueloppé entre des fueilles de bled d'Inde, puis boüilly et cuit en l'eau, et non sous la cendre, lequel ils appellent d'vn nom particulier Coinkia." Sagard, Grand Voyage, p. 136, Paris 1682, *see also* Tross ed. p. 94.

[3] Ga'te'do^{n}gana'darho, *pounded bread,* Mohawk form.

Dumplings, Oho^{n}'stă'. Moisten a mass of corn meal with boiling water and quickly mold it into cakes in the closed hand moistened in cold water. Drop the dumplings one by one into boiling water and boil for a half hour.

Dumplings were the favorite thing to cook with boiling meats, especially game birds.

To fish the dumplings from the pot every one had a sharpened stick or bone. The dumplings were speared and held on the stick to cool and nibbled with the meat as it was eaten. The sticks after use were wiped off and stuck between the logs or bark of the wall for future use.

Many of the sharpened splinters of bone now excavated from village and camp sites are probably nothing more than these primitive forks, or more properly food holders.

Oho^{n}stă' was one of the foods of which children were very fond, nor did grown people despise it as a bread with their meat.

Hominy, Onon'dăät.[1] Hominy is prepared from flint corns. For a family of five persons, a quart of corn was thrown in a mortar and moistened with a ladleful (four tablespoonfuls) of water.[2] To make the pounding easier a teaspoonful of white ashes or soda is thrown in also. The pounding with the pestle proceeds slowly at first to loosen the hulls, this work being accelerated if ashes have been used. When the hulls begin to come off easily the pounding is quickened until the corn is broken up into coarse pieces. It is then ready for the first sifting, e^{n}yowo^{n}k'. A basket called a oniius'tawanĕs is used for this purpose. The hominy passes through and is placed in a bowl while the uncracked corn is thrown back into the mortar to be repounded. After the second sifting the uncracked kernels that remain are thrown out to the birds or chickens. The hominy is then ready for winnowing. The results of the two poundings are carefully mixed and then put in a tossing bowl or basket. The hominy is tossed with a peculiar motion the bowl being held at a slant. The lighter chit rises to the top while the heavier portion stays at the bottom. The hulls and chit are thrown out by hand or by the use of a fan made of a bird's wing, called oněg'osta'. The process of winnowing is called waegai''tawāk.

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[1] Onoñ'darha is the Mohawk word.

[2] Harrington says cold water. *See* Seneca Corn Foods. Amer. Anthropologist. New Ser. v. 10, no. 3, p. 587.

The coarse granular meal so prepared is now ready for cooking. One part of meal is put in eight parts of water and boiled for two hours. Pork or bear's meat and beans are cooked with the hominy[1] for flavoring. When cooked salt or sugar were added, according to taste.

Sagard[2] in his *Grand Voyage* refers several times to this dish as *Sagamite*. In one instance he calls it a "good sort of substance" and says that its sustaining qualities surprised him.

With the Dutch hominy was called by another name. In Van der Donck's *Description of New Netherlands,* we find that the pap or mush of the Indians is called sapaen (suppawn). It was the common food of all Indians, he says, without which no Indian would think he had a satisfactory meal.

Hulled corn, O^{n}no"kwă'.[3] This favorite dish was made from some soft corn treated as corn used for bread. It was washed until free from skins and hulls and then put in cold water and boiled for four hours until the kernels had burst open and were tender. Small chunks of meat and fat were thrown in the boiling liquid and sometimes berries. O^{n}no"kwă' is the favorite feast dish of the Iroquois. This dish is a most palatable one and appeals to all tastes. It is used at Indian social gatherings as white people use ice cream, that is, as a fitting food for festal occasions. It must be confessed that the Indian's food was the more solid and perhaps the more sensible. Several canning companies now put up hulled corn under the name of Entire Hominy and it may be purchased in many modern provision stores.

Dried corn soup, Onädoonondä.[4] For winter's use, green, white, sweet or squaw sweet corn was cut from the cob and dried before a fire, taking care that the drying was rapid enough to prevent the milk from souring. The dried corn when prepared for

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[1] This is the sagamite of the French. *See* Jesuit Relations.

[2] "Le pain de Mais, et la sagamite qui en est faicte, est de sort bonne substance, et m'estonnois de ce qu'elle nourrit si bien qu'elle facit: car pour ne boire que de l'eau en ce pays-là, et ne manger que sort peu sonnent de ce pain, et encore plus rarement de la viande, n'vsans presque que des seuls Sagamités auec vn bien peu de poisson, on ne laisse pas de se bien porter, et estre en bon poinct, pourueu qu'on en ait suffisamment, comme on n'en manque point dans le pays; mais seulement en de longs voyages, où l'on souffre souuent de grandes necessitez", *Le Grand Voyage du pays des Hurons.* Paris 1632. p. 137; *Tross ed. Paris 1865.* p. 97.

[3] Gagarhedo^{n}'to^{n} is the Mohawk form of the word.

[4] Ganaha^{n}'dă^{t} is the Mohawk word.

food was boiled until tender, three-quarters of an hour. This dried corn was sometimes roasted and pounded for pudding meal.

Nut and corn pottage, Oniä' degaiyĭst'o^{n} onä'o'khŭ'. This was prepared by mixing nut meal or nut milk, oniä''ge', with parched corn meal.

Heckewelder[1] describes the use of nut milk with corn in a fairly detailed way as follows:

> The Indians have a number of manners of preparing their corn. They make an excellent pottage of it, by boiling it with fresh or dried meat (the latter pounded), dried pumpkins, dry beans and chestnuts. They sometimes sweeten it with sugar or molasses from the sugar-maple tree. Another very good dish is prepared by boiling with their corn or maize, the washed kernels of shell bark or hickory nut. They pound the nuts in a block or mortar, pouring a little warm water on them, and gradually a little more as they become dry until, at last, there is a sufficient quantity of water so that by stirring up the pounded nuts the broken shells separate from the liquor, which from the pounded kernels assumes the appearance of milk. This being put into the kettle and mixed with the pottage gives it a rich and agreeable flavor. If the broken shells do not all freely separate by swimming on the top or sinking to the bottom, the liquor is strained through a clean cloth before it is put into the kettle.

Corn and pumpkin pudding, Oniŭ''sä' odjis'kwa.[2] This favorite pudding was made from parched or yellow corn meal mixed with sugar and boiled pumpkin or squash. It was often used instead of gago^{n}sä odjis'kwa.

Samp, Gwä'onondä' or O'ni'yustägĕ'. In making samp the corn was treated with the same process as for corn bread except that it was not beaten so fine in a mortar. It was boiled in water and when cooked tasted like the soup of corn bread, but it did not have so delicate a flavor. Often berries or meat were mixed and cooked with samp. For samp any corn that would hull easily was used.

Adair after describing hominy says, "the thin of this is what my Lord Bacon calls Cream of Maize, and highly commends for an excellent sort of nourishment." This is the samp, or gwä'onondä' of the Iroquois.

Corn pudding, O^{n}so^{n}'wä.[3] For o^{n}so^{n}'wä white corn was

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[1] Heckewelder, John. History, Manners and Customs of the Indian Nations. Hist. Soc. Pa. 12:194.

[2] Onoo^{n}se'rhagowa odjis'kwa is the Mohawk name.

[3] Wadĕnosstatsaha"to', *burnt corn,* is the Mohawk name.

roasted brown and pounded slowly in a mortar and sifted until all the granules were uniform, the coarser ones being pounded and resifted until this end was achieved. The meal was then thrown in boiling water and cooked until tender.

Preserved in skin bags this meal was carried by hunters and either eaten raw with water, boiled as above or thrown in with boiling meat.[1]

Van der Donck, in his *Description of New Netherlands,* says:

> When they intend to go a great distance on a hunting expedition . . . where they expect no food, they provide themselves severally with a small bag of parched corn meal which is so nutritious that they can subsist upon the same many days. A quarter of a pound of the meal is sufficient for a day's subsistence; for as it shrinks much in drying, it also swells out again with moisture. When they are hungry they take a handful of meal after which they take a drink of water, and then they are so well fed that they can travel a day. [*See* N. Y. Hist. Soc. Col. Ser. 2. 1:193–94, 1841.]

Heckewelder describes this food as follows: "Their Psindamocan or Tassmanane, as they call it, is the most durable food made out of the Indian corn. The blue sweetish kind is the grain which they prefer for that purpose. They parch it in clean hot ashes until it bursts, it is then sifted and cleaned, and pounded in a mortar into a kind of flour, and when they wish to make it very good they mix some sugar with it. When wanted for use they take about a tablespoonful of this flour in their mouths, then stooping to the river or brook, drink water to it. If, however, they have a cup or other small vessel at hand they put the flour in it and mix it with water, in the proportion of one tablespoonful to a pint. At their camps they will put a small quantity in a kettle with water and let it boil down, and they will have a thick pottage. With this food, the traveler and warrior will set out on long journeys and expeditions, and, as a little of it will serve them for a day, they have not a heavy load of provisions to carry. Persons who are unacquainted with this diet ought to be careful not to take too much at a time, and not to suffer themselves to be tempted too far by its flavor; more

[1] "The Indians boil it till it becomes tender and eat it with fish or venison instead of bread; sometimes they bruise it in mortars and so boil it. The most usual way is to parch it in ashes, stirring it so artificially as to be very tender, without burning; this they sift and beat in mortars into a fine meal which they eat dry or mixed with water." Harris. Discoveries and Settlements. Pinkerton's Voyages. 12:258.

than one or two spoonfuls at most at any one time or at one meal is dangerous; for it is apt to swell in the stomach or bowels, as when heated over a fire." [1]

A handful of the parched meal, 2 or 3 ounces, was considered a rather large meal if eaten out of hand and this quantity was even considered dangerous unless cooked in a pot.

Most of the old writers refer to this dish[2] and agree that it is a most sustaining food. Sugar was often mixed with the meal to give it flavor and dried cherries were sometimes pulverized with the parched corn. In this form the Mohawk call it O'hogwitz' orha.

Beverly[3] in describing traveling customs says, ". . . each man takes with him a Pint or Quart of Rockahomonie, that is, the finest Indian corn, parched and beaten to powder. When they find their Stomach empty, (and can not stay the tedious Cookery of other things) they put about a spoonful of this into their Mouths, and drink a Draught of Water upon it, which stays in their Stomachs. . ."

Roasted corn hominy, Odjis'tănondä'. The ripe corn was husked by the harvesters and stood "nose" upward against the top pole of a roasting pit. This pit was a long narrow trench a foot or more deep with Y-shaped sticks at either end as supporters for the top pole, which was placed horizontally in the crotches, after a fire of saplings and sticks had been reduced to a mass of glowing embers [*see* pl. 21]. The ears were then leaned at an angle against the pole, drawn out and roasted. Watchers turned them as they were parched sufficiently while other helpers gathered them up when done and shelled the kernels into a bark barrel.

The meal from this roasted corn was called odjis'tănondä'. If the parched corn was boiled it was called ona^{n}dă'ono^{n}'kwă'.

It should be noted that this dish is prepared from roasted green corn and not from ripe dried corn as is o^{n}so^{n}'wä.

Parched corn coffee, O'nīs'tagi'. Corn was well burnt and parched on the coals, scraped from the cob and thrown in a dish. Upon this boiling water was thrown and the dish or kettle placed over the fire again. To produce the burnt corn drink the boiling was continued for about five minutes.

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[1] Heckewelder. History, Manners and Customs of the Indian Nations. Hist. Soc. Pa. 12:195.

[2] This is the Nocake or rockahominy of the New England Indians. *See* Williams. Key. Narragansett Club Reprint, 1:40.

[3] History of Virginia, p. 155.

Roasted corn, Gani'stĕⁿ'dā. This was the husked ear of green corn baked in hot embers.

It is related that one of the old methods was to dig a long trench and place the ears across two slender green saplings and allow the heat of the hot coals to cook the corn. The ears could easily be turned over and the roasting made uniform (*see* pl. 21).

Sometimes a husked ear of corn was incased in clay and baked. This was called Oga'goäk'wa or gagoⁿdŭk. For roasting ears[1] singly a sharpened stick was shoved into the stem and the ear held in the embers.

If kernels of the corn prepared in this way were sufficiently dried and parched the entire ear or the shelled kernels were capable of long preservation. The writer has found roasted corn on the cob, several centuries old, buried in pits which evidently once had been bark lined cellarettes. Parched shelled kernels are commonly found in caches in Indian village or lodge sites.

Pop corn pudding, Watatoñ'gwŭs odjis'kwa. Corn was popped in a metal or clay kettle and then pulverized in a mortar and mixed with oil or syrup. The writer has often seen the modern Iroquois run their corn popped in a modern popper through a chopping machine and eat the light white meal with sugar and milk or cream.

Ceremonial foods

Bear's pudding, Niagwai"täto^{n} odjis'kwa.[2] This was a ceremonial food prepared from yellow meal unseasoned and mixed with bits of fried meat. The meal was boiled into a pudding and the meat thrown in afterward. Bear dance pudding was only used as a ceremonial food in the Bear Society meetings or by members performing some of the rites.[3]

Buffalo dance pudding, Dĕgi'yagoⁿ odjis'kwa.[4] Squaw corn is pounded to a meal, boiled as a pudding and sweetened with maple or corn sugar. This pudding is harder than Bear dance pudding, its proper consistency being like the mud where the buffa-

[1] Beverly says, "They delight to feed on roasting ears, that is *Indian corn*, gathered green and milky, before it is grown to its full bigness." History of Virginia.

[2] O'kwa'rhi odjis'kwa is the Mohawk form.

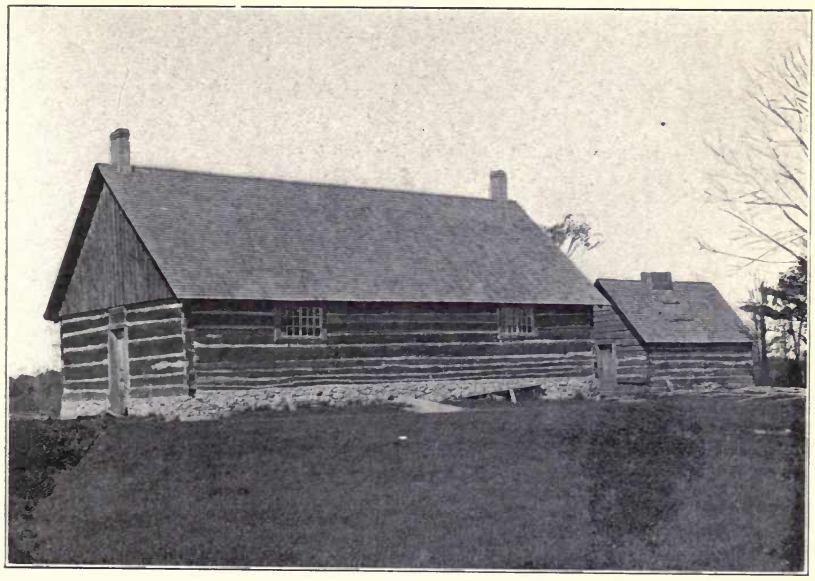
[3] *See* Parker, A. C. Seneca Medicine Societies. Am. Anthropologist. New ser. v. XI, no. 2.

[4] Dege'lhiyagon odjis'kwa is the Mohawk form.

Plate 21

Corn is roasted on a frame or pole placed over a pit filled with glowing embers. The roasted corn is used for parched meal.

Plate 22



1 Long House of the Canadian Onondaga, Grand River Reservation. It is here that the feasts and thanksgivings for the products of the fields are held by the Canadian Onondaga.

2 Cook house of the Canadian Seneca. The architecture of the building follows the lines of the bark house. Note the smoke hole in the roof.

loes go when they dance off the flies. This pudding is used only by members of the Buffalo company, a "medicine" society.[1]

Ball players pudding, Gadjis'kwae' odjis'kwa.[2] This is a charm pudding and made like false face pudding except that it is a little sweeter and contains more meat. A woman afflicted with rheumatism or some like disease prepares this pudding and presents it to a ball player, who, eating it, is supposed to charm away the disorder by his activity. He sets at defiance the spirits which have crippled the patient. If her case is very severe she bathes her limbs in sunflower oil and drinks it with the pudding.

False face pudding, Gago^{n}'să odjis'kwa.[3] This was a ceremonial pudding eaten at the False Face dances, at special private lodge feasts or in the ceremonies of healing the sick. It was composed of boiled parched corn meal mixed with maple sugar. Sunflower or bear oil was used with it in special cases. This pudding is considered a most delicious food and believed to be a very powerful factor for pleasing the masks. No one must make a disrespectful remark while eating this pudding as the mysterious faces were thought to be able to punish the offender by distorting their faces, and cases are cited to prove this assertion.

Unusual foods

Decayed corn, Utgī'onäo'. A corn food of which the Iroquois of today have no memory is described by Sagard who calls it *bled-puant.* To prepare this viand the ear of corn before it was fully mature was immersed in stagnant water and allowed to "ripen" for two or three months at the end of which time it was taken out and roasted or boiled with meat or fish. The odor of this putrid corn was so frightful that the good father either through imagination or from good cause relates that it clung to him for a number of days from simply touching it. Nevertheless he adds that the Indians sucked it as if it were sugar cane.[4]

It is safe to say that among the Iroquois no knowledge of this food remains. An Iroquois whom the writer interrogated said that

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[1] *See* Parker, A. C. Seneca Medicine Societies. Am. Anthropologist. New ser. v. XI, no. 2.

[2] Dehajī'gwa'es odjis'kwa is the Mohawk form.

[3] Ago^{n}'hwarha odjis'kwa is the Mohawk name.

[4] Sagard. Le Grand Voyage du Pays Des Hurons, p. 97; Tross ed. 1865, p. 140; orig. ed. Paris 1632.

he could imagine that the Huron would eat such food but that he was sure that Iroquois never used anything so questionable.

Another writer mentions a variety of bread mixed with tobacco juice. He says: "When they were traveling or laying in wait for their enemies they took with them a kind of bread made of Indian corn and tobacco juice, which says Campanius was a very good thing to allay hunger and quench thirst in case they have nothing else at hand.[1]

X USES OF THE CORN PLANT

1 **The stalk.** Stalk tubes, gŭshē"dă' or deyus'wände', were made for containing medicines. A section of the stalk was cut off at a joint, the pith removed, plugs were inserted at each end and the tube complete. Tubes were made from 2 to 8 inches long. Syrup, oshēstă', was extracted by boiling or evaporating the juice of young and green cornstalks. The top of the corn above the corn sheaths was cut, the stalk bruised and then thrown in a kettle and boiled, the juice was then strained off and evaporated. A metal polish, yestă'tedă'kwa, was made from the pith. The outer covering was stripped from a dry stalk and the pith used for rubbing copper and silver ornaments to a polish. Absorbent, ne"dĕskŭk, qualities of the dry pith were recognized and it was employed accordingly. A lotion, yago'găthă, of the juice of the green cornstalk and root was employed for cuts, bruises and sores. Fish line floats, hĕtgĕshoⁿiodyĕ', were made from sections of the dry stalk. Cornstalk war clubs and spears, gadji'wa, were used by boys in sham battles. Counter or jack straws, gasho'wēdă, were cut from the tassel stems and used with bean counters in games. Children were taught to count with these "straws."

2 **Uses of corn husks.** Single husks or strips pressed or folded together and dried were used to convey lights short distances, much as the rolled paper "lamp lighters" are used where matches are scarce. The Iroquois indeed now use husks for lighting lamps, calling them yediistoñda"kwa. A larger quantity of dried husks was used in kindling a fire. Husks are shredded and used for pillow, cushion and mattress fillings, onion'nya'gagoⁿ'shă'. For making "bride's bread" the corn pudding or grated green corn is wrapped in the green husk and baked or boiled as the case may require. Another use for the simple husks is as the water sprinklers

[1] Vincent. History of Delaware. Phil. 1870. p. 74–75.

used by the Otter company, Dowäändo^{n}', in their winter ceremony [*see* fig. 17]. In this instance the husks are pulled back over the stem and the cob broken midway as a handle. The sprinklers are called dioněgo'gwŭtă'.

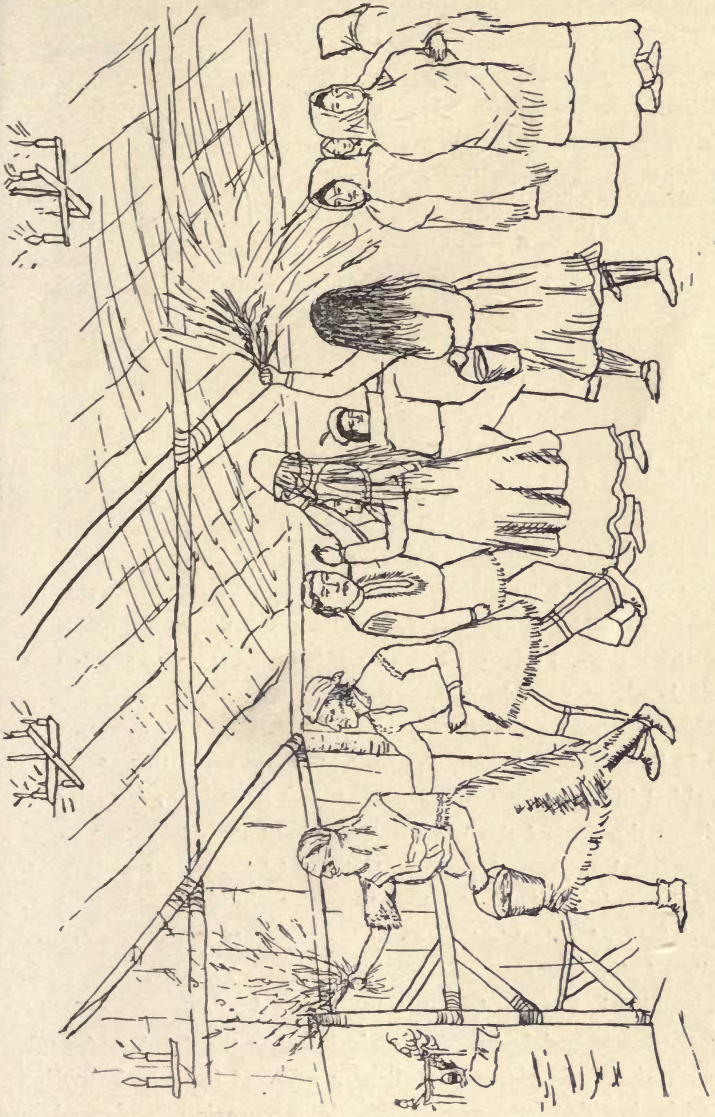


Fig. 17. Purification ceremony of the Society of Otters, a Seneca women's winter ceremony

Husks were sometimes braided in long strands and used for clothes lines, gäo^{n}''gä'; in the houses. The loosely braided husks

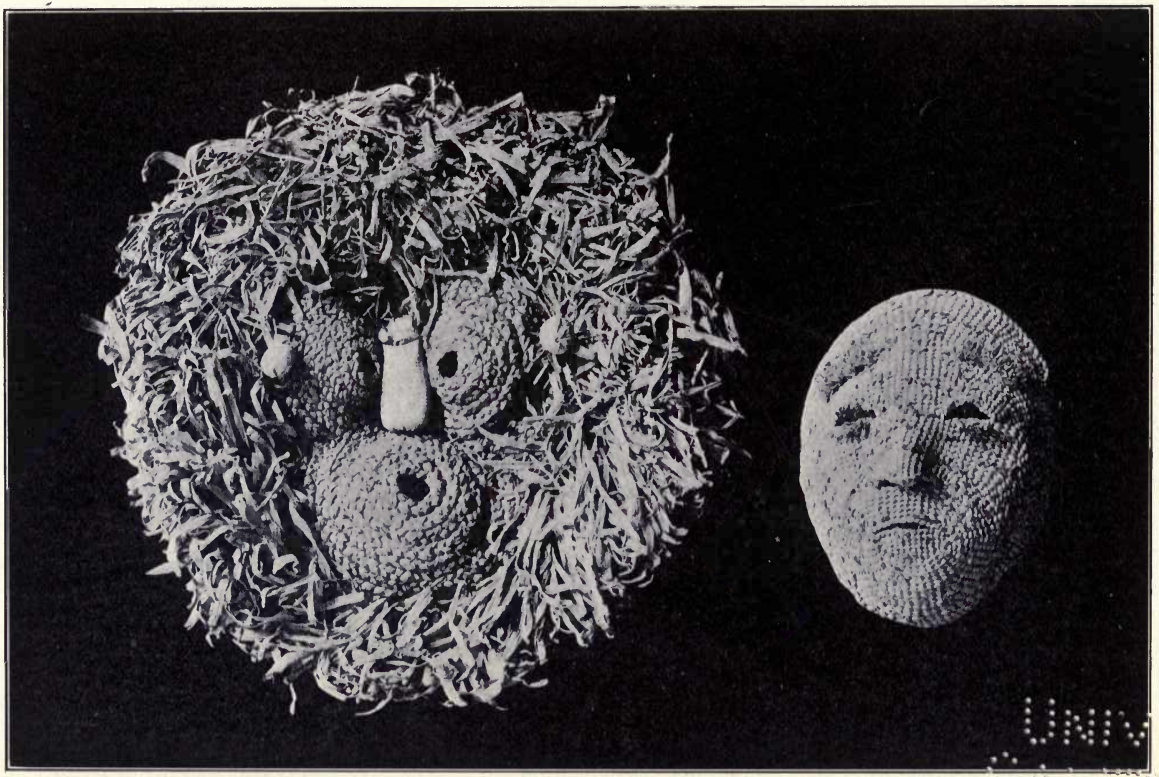
from the strings of corn, ostĕⁿsĕⁿ'gäs'skĕⁿdoni, were used by the "buffalo head" (Hade'yeoⁿ) announcers of the midwinter thanksgiving. A crown is arranged for the head and trailers tied to each ankle. Braided in fine ropes, the husk was coiled up into the masks, gatci'sha, used by the husk face (Gatci'sha'oäno') company [*see* pl. 23]. The braided coils are sewn with thread. An outer binding is fastened to the face, from which long shreds of the husk hang to represent hair [*see* pl. 23, fig. 1].

Another variety of the husk mask is woven entirely and is not sewed [*see* pl. 23, fig. 2]. These particular masks are used mostly on the Allegany Reservation. Husk bottles, trays and baskets are woven in the same manner as the woven mask as also are sandals and moccasins although the latter are about obsolete now [*see* pl. 24].

Another interesting article manufactured from corn husk is the lounging mat, onō'nya' gĕska'a or yiondyädĕⁿkwă'. This is made of short lengths of the husk neatly rolled and folded at the ends, into which other lengths were inserted and tied in place by a warp of basswood cord. A specimen of this mat is shown in plate 25. It was collected by the author in 1907 on the Tonawanda-Seneca Reservation. It was claimed that it was the old form of the Iroquois sleeping and lounging mat. It can easily be rolled up and is of no great weight. The writer is not aware of another specimen in any museum. No great age is ascribed to the State Museum specimen, the owner, Lyman Johnson, *Gaiĕnt'wakĕ'*, claiming it had been made in about 1900 by his mother.

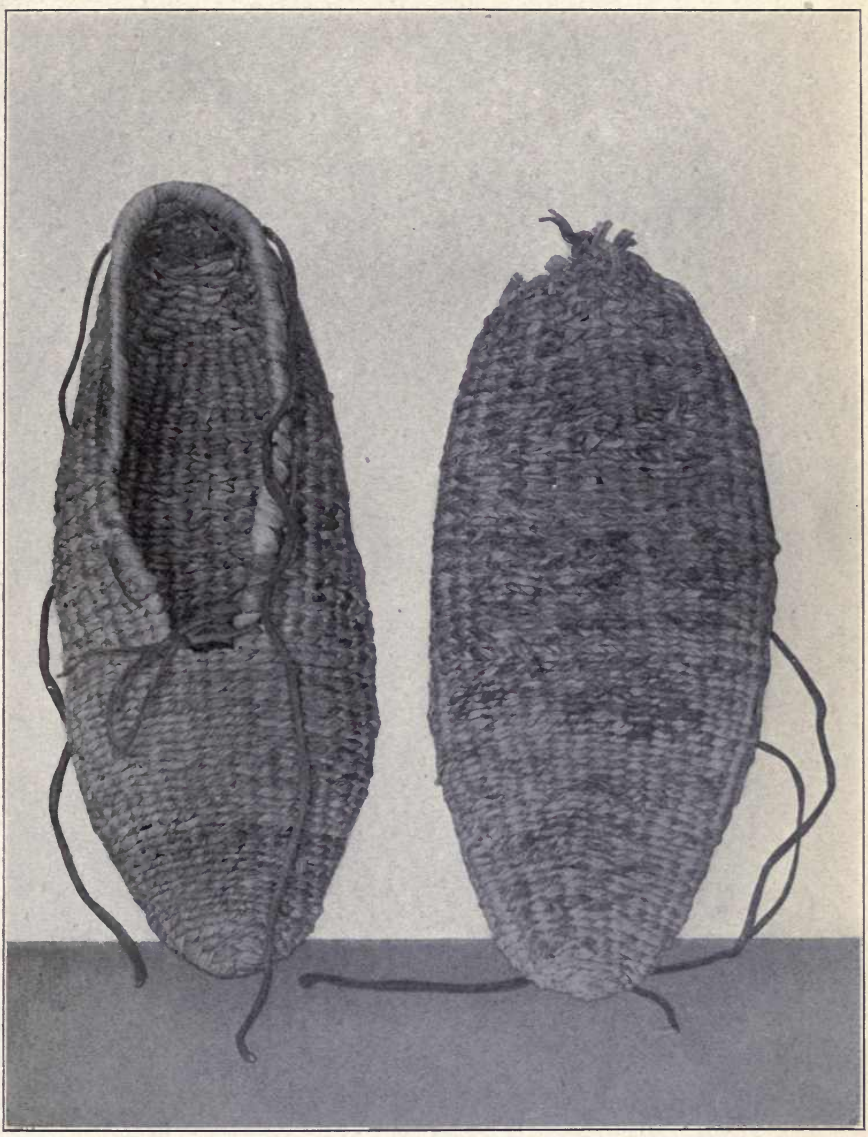
Probably the corn husk article most familiar to white people surrounding Indian reservations is the husk door mat, gadji'shă'. This mat is braided in such a manner that tufts of the husk are left protruding from the top of the braid. The braid then is coiled so as to form an oval or round mat and the thick tufts of still husk trimmed off evenly, and the flat braids sewed securely with threads of husk. Mats of this kind are common on all the reservations. The details of the foot mat are shown in plate 26.

Dolls, gayă"dă', are made by folding the husk in a pestlelike form for the neck and body. Room is left for the head and neck and the central core is pierced to allow a wisp of husk to be pulled through to be braided into arms. The lower portion is pierced in the same way and the husk for the legs pulled through. Husks are rolled around the upper portion of the neck and the head is formed,



Masks made from shreds of braided husk, used by the Husk Face Company

Plate 24

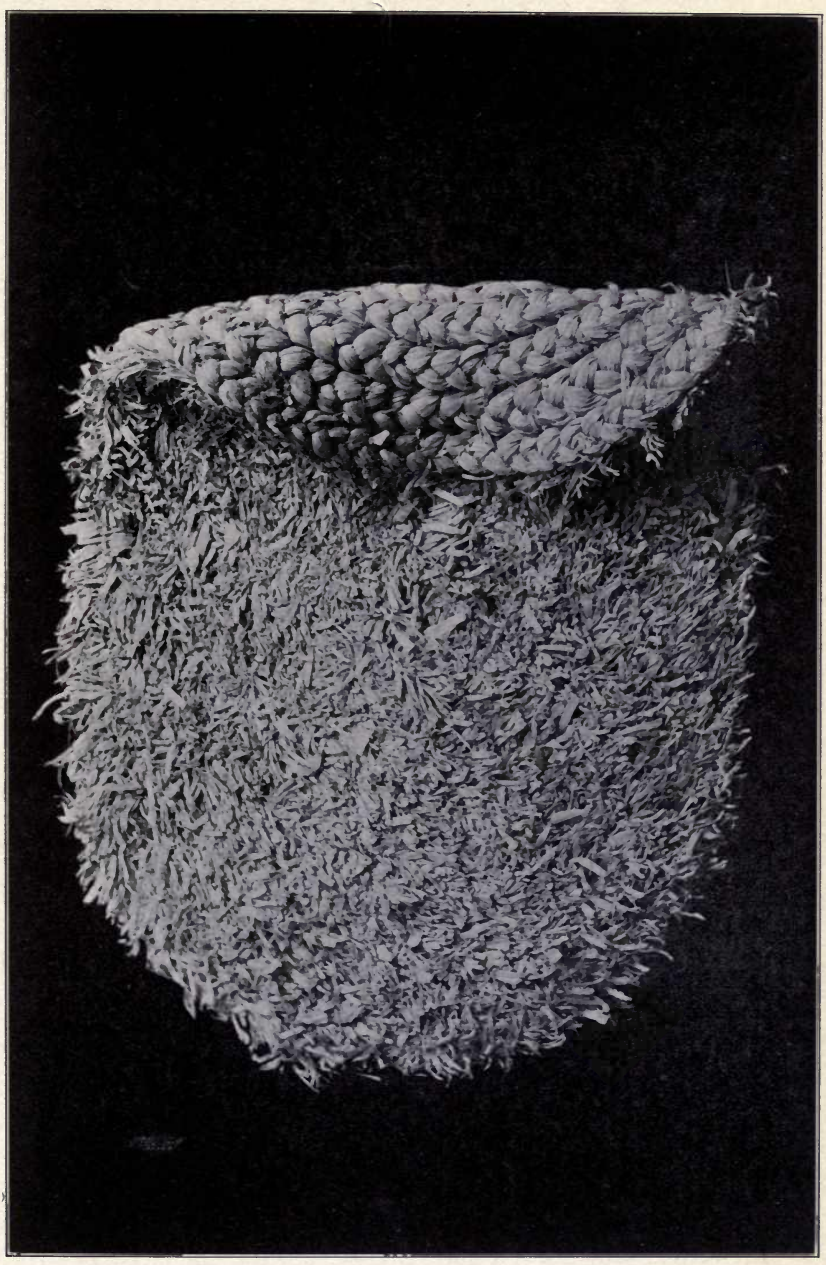


Seneca husk moccasins. Once common, these articles are now obsolete among the Iroquois. Collected by A. C. Parker, 1910

Plate 25

Husk bed mat. A rare Seneca specimen. Collected 1907 by A. C. Parker

Plate 26



Husk foot mat, Seneca specimen

Husks now are placed over the back of the neck and carried diagonally across the chest from either side. The same process is repeated from the front and the husk drawn diagonally across the back. This produces body and shoulders. The legs are then braided or neatly rolled into shape, wound spirally with twine and tied tightly at the ankle. The foot is then bent forward at right angles to the leg and wound into shape. The arms undergo a similar process but no attempt is made to simulate hands. The head and body are now ready for covering. For the head the wide husks are held upward against the top of the head and a string passed around them. The husks are then bent downward and the string tightened. This leaves a little circular opening at the top of the head. The head cover husks are drawn tightly over the form and tied at the neck, which is afterward wound neatly with a smooth husk. More diagonal pieces are placed over the shoulders fore and aft and drawn tightly down to the waist. A wide band is then drawn around the waist and tied. The doll is now ready for corn silk hair which may be sewn on, and its face may be painted on. These dolls are sometimes dressed in husk clothing but more often cloth or skin is used. Dolls are dressed as warriors and women and are given all the accessories, bows, tomahawks, baby-boards or paddles, as the sex may require.

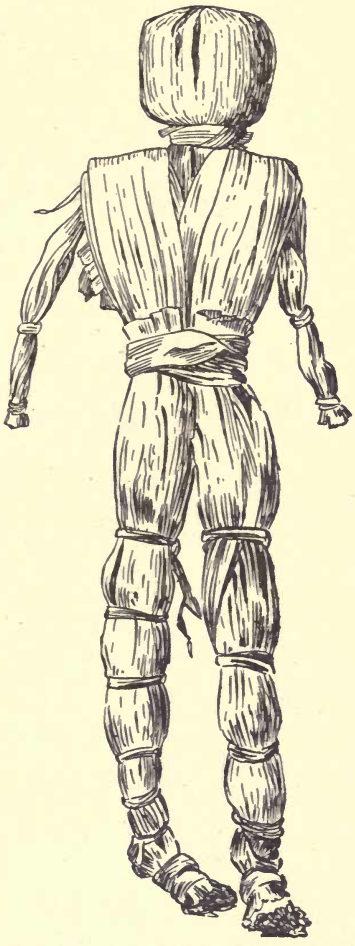


Fig. 18 Common type of the husk doll made by the Iroquois of New York and Canada. Figure is half size.

Among the articles made from husks, moccasins are perhaps as uncommon as any. Morgan collected a pair for the State Museum in 1851, but the specimens are not now to be found. In 1910

the writer succeeded in getting two pairs on the Cattaraugus Reservation from a husk worker who spent some time in finding among the old women one who remembered the art. She was successful in her inquiries and was able to make two pairs for the State Museum. They are most ingeniously woven but are as snug as any slipper ever made. The details of these moccasins are shown in plate 24.

Fig. 19 Doll made in obedience to a dream and cast aside to carry away some malady. ¼ Specimen is actual size

Small baskets were woven from twisted corn husks. Trays, table mats and salt bottles were similarly made. The basket was commenced by tying two rolled husks together with another single husk inserted, and then starting two oppositely placed husks about them by the twining process as the width of the warp increased, as it radiated from the center others were inserted and the twining process repeated. When the desired size of the bottom was reached the warp was bent at right angles upward and the twining continued until the hight wished had been achieved. The warp was then bent over along the top and braided, in a three strand plait. This stiffened and protected the top. Husk baskets are called onõnya' gaŭs'hä' (=husk basket).

Husk bottles for containing salt or ashes or other substances are called onõ'nya' gŭs''heda' (=husk bottle) or yedji'kedä''kwă (=salt dish, from *ye*, feminine affix, and odjike''dă, salt, and iäkwă', meaning *container*, in compounding words). Salt bottles were tightly woven and some are said to be water tight. The Iroquois prize them, believing that the husk absorbs the moisture before it reaches the salt which is thereby kept dry.

Husk trays are used for containing small objects or food and are designed to be kept on a flat surface only. They are called o'dion'hä' iäkwă' (=crumb dish).

Baby hammocks, onõ'nya' gao^{n}'wo^{n}', or gao^{n}'yoñ, (onõ'nya'

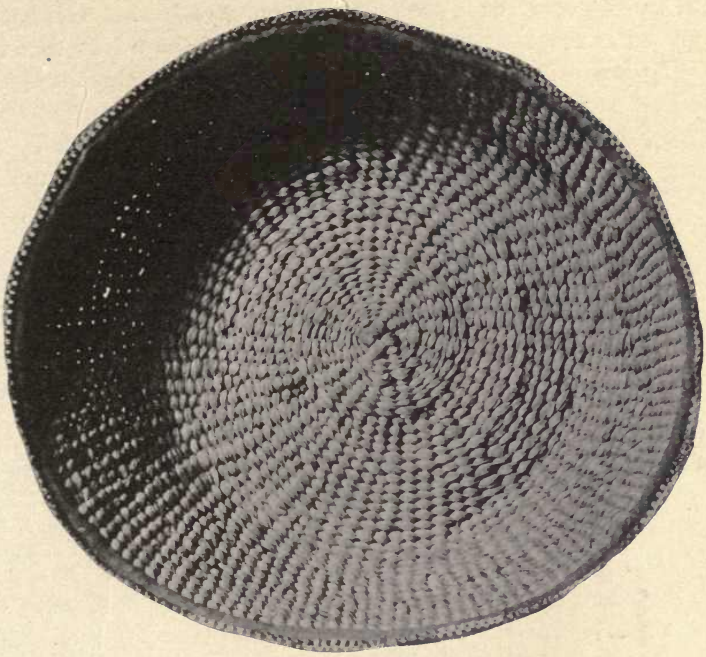


Fig. 20 Corn husk basket. Collected by Lewis H. Morgan, 1850. Specimen is 12 inches in diameter.

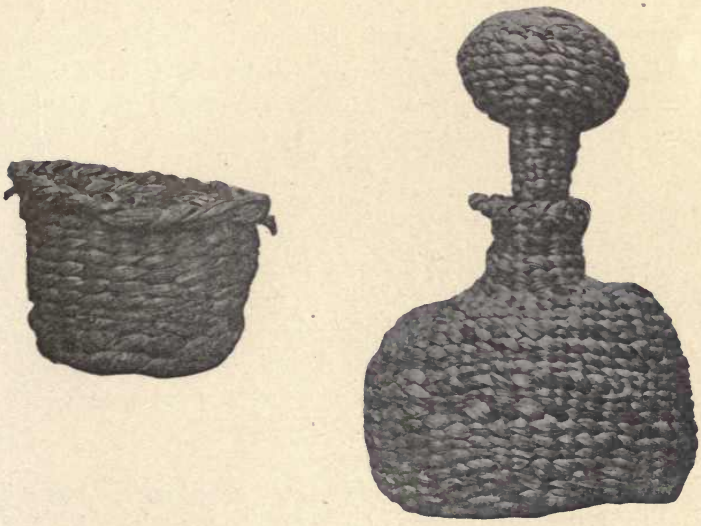


Fig. 21 Corn husk salt basket and bottle, about ⅔ actual size. Collected 1908 by A. C. Parker. Seneca specimens

+ gaoⁿ′woⁿ′ = boat, or gaoⁿ′yoñ[1] = hanging boat). Hammocks are woven like the sleeping mat but they are shaped so that they will hang properly and hold a baby in safety. These hammocks are suspended over the beds of the parents where they can be swung and the babies easily cared for. Hammocks are now made by suspending a blanket or a quilt in the same manner. These modern contrivances are called iyōs′gashâⁿ′ niă′doⁿ gaoⁿwoⁿ′, *blanket, it is made from boat,* (a hammock).

Husk pudding wrappings are called deyĕ″hodyĕⁿ′yĭktă′ (= a wrapping). Husks were braided for ropes and clothes lines, gäoⁿ″gä (= rope).

A woman unable to deliver the placenta is held over a pan in which a couple of handfuls of husks are burning. The smoke rises and exercises a medical function, it is thought, which facilitates the delivery. This was widely practised by the Iroquois as late as 1875, and now to some extent.

To stop "nose bleed" a small strand of husk is tied about the little finger. A wad of husk or kernel of corn was placed under the upper lip next to the gum and just over the middle incisors.

There are references to clothing of corn husk and Father Dablon in 1656 wrote of the brother of his host who arrayed himself to impersonate a satyr, "covering himself from head to foot with husks of Indian corn."

3 **Uses of corn silk.** Corn silk (when on stalk = odiot′; off = ogä″) was used commonly for the hair of husk dolls. It was rarely used for adulterating tobacco. Another use of the dried corn silk was an adulterant for certain medicines. The dried silk was pulverized and kept in cornstalk bottles.

4 **Uses of corn cobs.** Cobs (Ono″gwĕⁿäⁿ) were used for smoking meats and hides. A slow fire of cobs was built under the meat and then smothered so that the cobs merely smoldered and smoked. In smoking skins the skin was folded into a tentlike cone, suspended from a limb or crane and smoked on the underside from a small pit beneath, in which was a smoldering fire of cobs. The skin was then reversed and smoked. Cobs were not the only substances used for smoking.

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[1] Gani′yōn = hanging, gaoⁿ′woⁿ′ = boat; gaoⁿyoñ, hanging boat = hammock. The earlier form is gao′woⁿ′niyoñ, hanging boat. *Cf.* Awĕⁿ′oⁿ′niyoñ = hanging flower; Awĕⁿ′oⁿ′ = flower. Gano″djaniyoñ = hanging kettle, gano″dja = kettle + (ga)ni yoñ = hanging.

Segments of cob are used for stoppers for husk salt bottles and for the openings in gourd rattles. Cobs were and still are used for hand and flesh scrubbing brushes, oyĕn′nyĭ′tă′, and for pipe bowls. Cobs were "singed" and used as combs, ĕⁿyĕskĕⁿĕⁿwai′, with which to clean pumpkin and squash seeds. Singed cobs were also used as back scratchers, yiontgĕⁿ′′dătă′.

The ashes, o′gäⁿ′, of the cob in quantities were used to make a lye, o′gäⁿ′gi′, that induced vomiting. In small quantities cob ashes were used as a seasoning for food. "They killed stomach worms and prevented dyspepsia."

5 **Uses of the Caryopsis.** Besides their use as food, corn kernels were used as beads and decorations, as a medium for trade for the oil, for rattlers in gourds, and for sacrificial purposes.

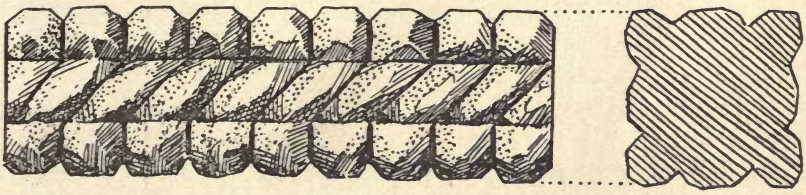

Fig. 22 Section of ceremonial cane showing the use of kernels of corn as a decorative motive

When used as decorations the various colored corns were soaked in water until soft and then strung, sometimes with beads alternating upon thread. Such strands could be used as necklaces and the writer has seen them strung as portieres. Oil, Onä′oⁿ ono′′, was extracted from the kernels and used for a rubbing oil and various poultices, oyĕⁿ′sä′,[1] were made of corn meal. There are a number of references to the sacrifices to various spirits.

White Tuscarora corn kernels were parched on the stove and pulverized on a hot stone. The powder, onä′o ot′on′yoshä, was used as a compress on the navel of a baby from whom the dried navel chord (hoshet′dōt, masc., goshet′dot, fem.) had just been removed. It was thought to be a nonirritating absorbent and a valuable healing agent.

[1] Iroquois use poultices of boiled maize flour and apply them hot to the cheek. "I have found that this remedy has been very efficacious against a swelling," says Kalm, "as it lessens the pain, abates the swelling, opens a gathering if there be any, and procures a good discharge of pus." Kalm. Travels in North America, p. 514; Pinkerton. Voyages, p. 13.

In notifying people of the death feast an ear[1] or kernel of corn is given as a token. The person receiving it is bound to attend the ceremony.

The pulp of crushed green corn has been used effectively by the Iroquois as a substitute for deer's brains as a filler in tanning skins.

At the unveiling of the Mary Jemison monument in Letchworth Park on September 19, 1910, a Seneca girl threw handfuls of Tuscarora corn upon the grave and Mrs Thomas Kennedy, a Seneca and descendant of Mary Jemison, made a short address, saying that as the corn which Mary had so often planted sprang into life again, so it was hoped that her spirit would blossom in the heaven world.

6 **Uses of corn leaves.** Corn leaves, odio^{n}'să', newly torn from the stalk are used as wrappings for green corn tamales, or boiled cakes, oniă"tcidă' (= folded braid of hair). The green corn cut from the cob is thrown into a mortar and beaten into a paste and wrapped in corn leaves which are doubled over and tied three times laterally and once transversely.

In the *Jesuit Relations of* 1652–53, a Jesuit Father relates that his finger, the end of which has been cut off, was wrapped in a corn leaf to staunch the flow of blood.[2]

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[1] Beauchamp. Am. Folk Lore Jour. 11:3.

[2] Jesuit Relations. 40:153.

The feast of Mandamin, from an engraving by F. B. Mayer in Schoolcraft's *Indian Tribes.* This picture is reproduced as a suggestion as to the widespread veneration of the corn plant among the Indians

Interior of modern Mexican Indian kitchen, from a photograph by Prof. Marshall H. Saville. Note the clay pots, the scattered ears and cobs and the metates before the women

Part 2

NOTES ON CERTAIN FOOD PLANTS USED BY THE IROQUOIS

XI BEANS AND BEAN FOODS

Beans next to corn were regarded as a favorite food and quantities are still eaten. The Iroquois have 10 or more varieties of beans which they claim are ancient species which have long been cultivated. Some are said now to be cultivated only by the Iroquois.

The cornstalk bean,[1] oä"gēka, is thought by the Seneca to be the most ancient bean and perhaps the species which grew from the Earth-Mother's grave.

The bean is an indigenous American plant, at least it grew here in Precolumbian times. Explorers and early writers have left us many references to it and most agree that it is an American plant.

Varieties of Iroquois beans

Beans, osai"dă'

Bush beans	dega'gahă'
Wampum	o'tgo'ä osai"dă'
Purple kidney	awe'oñdago^{n}
White kidney	o'sai"dăgän
Marrowfat	osai"dowanĕs
String	otgo^{n}'wasägan^{n}oñ odji'stanokwa
Cornstalk	oä"geka
Cranberry	hayuk'osai"dăt
Chestnut lima	onii'stă'
Hummingbird	djŭtowĕndo^{n}
White (small)	osai"dagä'n
Wild peas	owĕndo'ge'ă' osai"dă'
Bean vines	oo^{n}'să'
Poles	yoäno'dă'kwă'

Bean foods

Among the varieties of bean foods may be mentioned:

Bean soup, osai"dă'gĭ'. This was made in several ways: from string beans cooked in the pods, from shelled green beans and from dried beans. Often sugar was put in as a seasoning.

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[1] *Cf.* N. Y. Hist. Soc. Proc. Ser. 2, 1:189.

Fried cooked green beans (none''owi = *it is done*). The cooked green beans were fried in sunflower or bear oil and eaten with salt.

Mashed bean pudding (osai''dă' odjiis'kwa). Dried beans were put in a mortar and pounded coarsely, soaked in cold water and boiled down to a pudding with bear meat or vension.

Boiled beans (osai''dŭk odjis'kwa). These were mashed and mixed with sugar and grease.

Beans and squash "together" (Ganiŭ''sŭk osai''dă' kho). Cook cranberry beans with the pods and when beans are almost dry serve in the shell of a boiled squash. This dish is served at the Green Corn Thanksgiving ceremony and is called Onon'deikwawas, *cooked together food.*

Beans with corn (Gai'nondä). Green shelled beans were boiled with green sweet corn, meat or fat. The red beans were preferred.

XII SQUASHES AND OTHER VINE VEGETABLES

The squash plant is indigenous to America and was cultivated to a large extent by the Iroquois and other eastern stocks. The word *squash* is derived from the Algonquin *akuta squash* or *isquouter squash* (colonial spelling). Roger Williams[1] writing on the agriculture of the New England Indians says: "Askuta squash, their vine apples, which the English from them call squashes, are about the bigness of apples of several colours, a sweet light wholesome refreshing."

Van Curler in the same year wrote in his journal: "We had a good many pumpkins cooked and baked that they called anansira." This was in December which of course shows the use of squashes in winter. Van Curler attests the hospitality of the Mohawk when he writes: "A woman came to meet us bringing us baked pumpkins to eat." [*See* Am. Hist. Soc. Trans. 1895. p. 91–92]

The squash was one of the principal foods of the Iroquois who even yet regard it as a favorite. The records of early travelers[2] abound in references to the uses of squashes and pumpkins. Some of them praised "pompions" for their goodness while others

[1] Williams. Key. 1643. p. 125. Narragansett Club Pub. *Cf.* Wood. New England Prospect. 1634: "In summer when their corn is spent Isquoter squashes is their best bread, a fruit like young Pompion."

[2] Heckewelder, p. 194–95; Jesuit Relations, 10:103.

affirmed that the "citrules" were hard tasteless things. Hunger and mood largely govern descriptions of food.

Lahontan[1] records that the *citruls* (pumpkins) of this country are sweet and of a different nature from those of Europe. ". . . and I am informed," he writes, "that the *American citruls* will not grow in *Europe*. They are as big as our *Melons;* and their Pulp is as yellow as Saffron. Commonly they are bak'd in Ovens, but the better way is to roast 'em under the Embers as the Savages do. Their Taste is much the same with that of the marmalade of Apples, only they are sweeter. One may eat as much of 'em as he pleases without fearing disorder."

Charles Hawley in his *Early Chapters of Cayuga History*[2] quotes Dr Shea's translation of de Casson's *Historie de Montreal* which gives the account of the journey of Trouvé and the Catholic fathers to Kenté. A part of the narrative reads:

Having arrived at Kenté we were regaled there as well as it was possible by the Indians of the place. It is true that the feast consisted only of some citrouilles (squashes) fricasseed with grease and which we found good; they are indeed excellent in this country and can not enter into comparison with those of Europe. It may even be said that it is wronging them to give them the name citrouilles. They are of a very great variety of shapes and scarcely one has any resemblance to those in France. They are some so hard as to require a hatchet if you wish to split them open before cooking. All have different names.

A favorite way of preserving pumpkins and squashes for winter use was to cut them into spirals[3] or thin sections and hang them on the drying racks to evaporate. Sometimes even now this method is used but the modern way among the Seneca and Onondaga at least is to cut off thin sections and string the pieces on cord. A string would hold about half a pumpkin or squash and be suspended perpendicularly to pegs back of the stove or near the fireplace.

Varieties of squashes

The Iroquois generally planted their squashes in the same hills with corn and some kinds of beans. Beside the land and labor saved by this custom there was a belief that these three vegetables were

[1] 1:151.

[2] Early Chapters of Cayuga History. Auburn 1879.

[3] *Cf.* Adair, p. 408.

guarded by three inseparable spirit sisters and that the plants would not thrive apart in consequence.

Crook neck squash	onya'sa'
Hubbard squash	odaint'dowanĕ'
Scalloped squash	onya'săo^{n}'wĕ^{n}
Winter squash	gai'dowanĕ'
Hard pumpkin	nyo'sowanĕ'

Squash foods

Baked squash (wandenyo^{n}soñdŭk). Squashes were baked in ashes and the whole squash eaten, the shell and seeds included.

Boiled squash (Ganyu'sō). Squashes were split and cleaned and boiled in water salted to taste.

Boiled squash flower (ojaint'dŭk).[1] The infertile flowers of the squash were boiled with meat and the sauce used as a flavoring for meats and vegetables.

Melons

Cucumber	onios'kwäe'
Musk melons	wa'yais
Water melons	o nyut'sŭtgus

Other vine foods

" Husk tomatoes "	dji'wewa'yas

Melons were planted in patches in the woods cleared by burning, the leaf mold furnishing a good medium for growth. Those who planted melons in cleared woodland tracts set up poles upon which were painted the clan totems and the name signs of the owners. The totem sign signified that while, according to the communistic laws, the patch belonged, nominally, to the clan, and that any clansman might take the fruit if necessary, yet by virtue of the fact that the garden was cleared, planted and cultivated by the individual whose name was indicated, the individual claim and right should be recognized as actually prior, though not nominally.

Before the frost the melon vines that still had unripe fruit were often dug up without disturbing the roots, and replanted in a basket of sand to be taken to the lodge and kept under the beds or in small cellars. During the winter months, so several informants said, the melons would mature and were reserved for the sick.

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[1] Bartram in his *Observations,* page 16, writes of "one kettle full of young squashes and their flowers boiled in water and a little meal mixed."

XIII LEAF AND STALK FOODS.[1]

Wild pea	*Lathyrus maritimus*	awĕndo'ge'a osai''dă'
Berry sprouts		wasē''oik'da' (= new sprouts)
Sumac sprouts	*Rhus glabra*	o'tgo''dă'
Wild asparagus	*Asparagus officinalis*	deo'dai'ho
Sorrel	*Oxalis* (var. sp.)	deyu''yu'djis (= sour)
Yellowdock	*Rumex crispus*	iye't (= she stands)
Mustard	*Brassica* (var. sp.)	djitgwä'ä niayawĕⁿo''dä (= yellow blossom)
Dandelion	*Taraxacum officinale*	odjishoⁿdă' (=yellow star)
Pokeberry plant[2]	*Phytolacca decandra*	o''sheă onĕ''ta' (= crimson leaves)
Milkweed	*Asclepisa syriaca*	onaǫs'käⁿ
Cowslips	*Caltha palustris*	ganoⁿ'now's (=it wants)
Pigweed	*Chenopodium* (var. sp.)	gwis'gwis ganĕ''das
Burdock	*Arctium lappa*	onoⁿdowa'nĕs (= big comb)

Berry and sumac sprouts newly grown and sorrel are eaten raw and esteemed an excellent alterative. In the spring new stalks of wild asparagus, peas, yellowdock, poke and milkweed are cooked as greens. The plants must be young and tender and not more than 6 to 10 inches high. All greens are supposed to be good for the liver, for the blood and as a remedy for rheumatism. Young dandelions, cowslips and mustard were cut at the ground and boiled as greens. Fat meat was generally cooked with greens.

XIV FUNGI AND LICHENS

Mushrooms	onĕⁿ'să'
Puffballs	onĕⁿ'să'wa'nĕ'
Lichens	gŭstaot onĕ''ta'

Mushrooms, puffballs and other edible fungi were esteemed as good materials for soup. The fungus is first peeled and then diced and thrown in boiling water, seasoned with salt and grease. Sometimes bits of meat are added. The Iroquois like edible fungi quite as well as meat.

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[1] Adair, p. 415.
[2] *Ibid.* 412.

Puffballs were peeled and sliced and mushrooms peeled and fried entire in grease, sunflower or bear oil, though sometimes deer tallow was used.

Rale[1] mentions the use of tree fungi and says that they were "white as large mushrooms; these are cooked and reduced to a sort of porridge, but it is very far from having the flavor of porridge."

Lichens have been eaten but rarely within the memory of my oldest informants. Hunters when pressed by hunger, they remembered, had sometimes scraped the lichens from a tree or rock and boiled them with grease. In preparing them the lichens were first washed in a mixture of camp ashes and water to remove the bitterness. In times of great emergency, however, with hunger pressing, the cook did not stop to soak the lichens but cooked them as they were. The Jesuit Rale, in his letter to his brother mentions lichens and calls them "rock tripe."[2] When cooked, he says, they made a black and disagreeable porridge.

In Iceland for centuries lichens have been an important food and other peoples have not despised them. The nutritive value lies in the lichenin and starch which the plant contains.

XV FRUIT AND BERRYLIKE FOODS

The Iroquois considered fruits and berries a necessary part of everyday diet. Long before the Revolutionary War they had, in many places, extensive orchards of apples, peaches and plums. It is probable that at that period they cultivated fruit trees to a greater extent than any other native American people. The Iroquois loved the apple above other fruits, a fact which several writers mention.[3] General Sullivan in his famous raid against the hostile Iroquois cut down a single orchard of 1500 trees.[4]

A list of the principal fruits used by the Iroquois follows:

Apple	*Pyrus* (var. sp.)	ganyŭ''oyă oyă''odji'yă
Crab apples	*Pyrus coronaria*	djoik'dowa
Thorn apples	*Crataegus* (var. sp.)	ăwe'owek

[1] Jesuit Relations, 67:223.

[2] Jesuit Relations, 67:223.

[3] *See* Schoolcraft. Senate Document 24. Albany 1846. "The apple is the Indian's banana."

[4] History of New York during the Revolutionary War. New York 1879. II:334. Life of Brant. Albany 1865. v. II, ch. I.

Cherry, wild	*Prunus* (var. sp.)	oyă'gane gowa
Cherry, choke	*Prunus virginiana*	gane', or dyagyonyă'-tăs
Peach[1]	*Prunus persico*	gai'dăe' odji'yă'
Plum	*Prunus americana*	gă'e'
Grapes	*Vitis* (var. sp.)	oñiŭng'wisă'
Pawpaw	*Asimina triloba*	hadi'ot
Pear[1]	*Pyrus* (var. sp.)	odji'djo'gwa
Quince[1]	*Cydonia vulgaris*	odji'ju oyă''dji
Mandrake	*Podophyllum peltatum*	odă''onoshă'

Terminology

Tree	gē'it
Fruit skin	oă'wistă'
Fruit seeds or pits	oskă''e^{n}
Core	oă''dă'
Stem (also tree trunk)	oondă'
Cluster	wa'gwais'hănion

Apples were generally eaten raw but they were often boiled entire or cut up for sauce. The favorite way, however, was to bake them in ashes. The camp fire was brushed aside and the apples laid on a layer of hot gray ashes, covered with the same material, the hot embers raked over these and the fire rebuilt. Baked apples are called wada'gondŭk and the boiled sauce ganyaoyă' odji'skwa. The latter was eaten with roasted meats or bread.

Apples were stored in bark barrels and buried in winter pits with other vegetables. Apples were cut up in thin slices, strung on twine and dried. Even now it is a common thing to see apples strung up over the stove or hung on a pole at the top of the room in the houses of the more primitive Iroquois.

Cherries were dried for winter use and pulverized in a mortar and mixed with dried meat flour for soup.

Small fruits. Of the smaller fruits and berries the list which follows includes those most commonly used:

Blackberries	*Rubus* (var. sp.)	otgă'ashă'
Black raspberries	*R. occidentalis*	toñ'dâktho'
Red raspberries	*R. strigosus*	dagwă''dannĕ'

[1] Postcolumbian.

Blueberries	*Vaccinium* (var. sp.)	getdatge'a
Huckleberries	*Gaylussacia baccata*	oyādji''
Thimble	*Rubus odoratus*	
High cranberries	(*Vac. macrocarpon*)	onaoⁿshä''
	Viburnum opulus	ha'nonŭndjŭk
Nannyberries	*V. lentago*	ga'nē'să' wanunda
Mulberries	*Morus rubra*	odji'nowōⁿ'wadisiyas djo'yesshăyes
Strawberries	*Fragaria virginiana*	odjistondas'hä'
Elderberries	*Sambucus canadensis*	oniot'sŭtgŭs
Gooseberries	*Ribes* (var. sp.)	nŭⁿ''gwussōt
Dewberries	*Rubus villosus*	ogau'o''gwă'
Wintergreen	*Gaultheria procumbens*	djisdă''geă'
Partridge vine, Squaw vine, Oneberry	*Mitchella repens*	oshaistă''wayas
June berries	*Amelanchier oblongifolia*	hä'doⁿ
	A. canadensis	
Currants	*Ribes* (var. sp.)	djoägă''wayas
Sumac berries	*Rhus glabra*	o'tgo''dă'

Terminology

Bush	oi''ktă'
Berries	odji'yă'
Blossoms	awe'oⁿ
Briars	oi''kdaii'
Green fruit	ogäⁿ's'ä'
Seeds	oskäⁿ'a'
Berry time	o'wai'yai'
Berry picker	ha'yagwŭs
I pick berries	ga'yagwŭs

Berries when in season were eagerly gathered by the Iroquois and even today berries have not lost favor with them. They were eaten entire raw, crushed and mixed with sugar and water or mixed with various puddings. Blackberries, strawberries, elderberries and huckleberries seem to be the favorite varieties. For winter's use blackberries, black raspberries, huckleberries and blueberries are dried. Strawberries were also dried but required a great deal of care. These dried fruits were either soaked in sugared water and cooked

as a sauce or thrown in soups, puddings and breads or other foods. For making an expedition food berries were pounded with meat, parched corn and sugar. This food was eaten sparingly and washed down with quantities of water.

Dried blackberries are soaked in honey and water and used as a ceremonial food by the Bear Society in their rites.

Dried, and in modern times, preserved strawberries are mixed with water and maple sugar and used as a refreshment by the Guardians of the Little Water Medicine[1] during their night song.

Strawberries are eagerly gathered in the spring and eaten by every one as a spring medicine. Handsome Lake, the prophet, commands their use for this purpose in his code, the Gai'wiiu.[2]

Juneberries were considered as a valuable blood remedy, which was given to mothers after childbirth to prevent afterpains and hemorrhages. The smaller branches of the Juneberry bush were broken up and steeped as a tea for the same purpose.

Cranberries were a favorite autumn food and were considered "good" for the blood and liver. Huckleberries were also valued for the same purpose.

Elderberries were eagerly gathered for sauce. They were considered a valuable remedial agent for fevered patients and convalescents.

Partridge berries were not generally eaten as food except perhaps by women. They were supposed to prevent severe labor pains and to facilitate easy delivery. There were other herbs also used for this purpose.

The drying of berries and small fruits in the late summer and autumn was and now to a certain extent is an important item in the domestic economy of the Iroquois.

Blackberries, black raspberries, huckleberries, elderberries and blueberries are easily dried entire if care is taken not to allow them to become damp during the process, which may spoil them. It is said that blackberries were best when dried on the stalk. The stalk or cluster stem was broken and allowed to hang on the bush where the sun could dry down the fruit with all its natural juices. The smaller pulpy berries were dried in shallow basket trays [*see* pl. 30]. The juicy berries such as strawberries and red raspberries were mashed

[1] Parker, A. C. Secret Medicine Societies of the Seneca. Am. Anthropologist. New ser. v. 11, no. 2.

[2] Translated by Parker & Bluesky. Manuscript in New York State Library.

in a wooden bowl and with as much juice as the mass would hold placed on basswood leaves on slabs of slate or other flat rocks. The juice that remained in the bowl was given to the children who even in those days loved to "lick out the bowl."

For winter's use the dried berries were soaked in cold water and then heated slowly, maple sugar being thrown in as a seasoning. The berries were then either eaten as a sauce or mixed with bread meal or onon'dā', hominy.

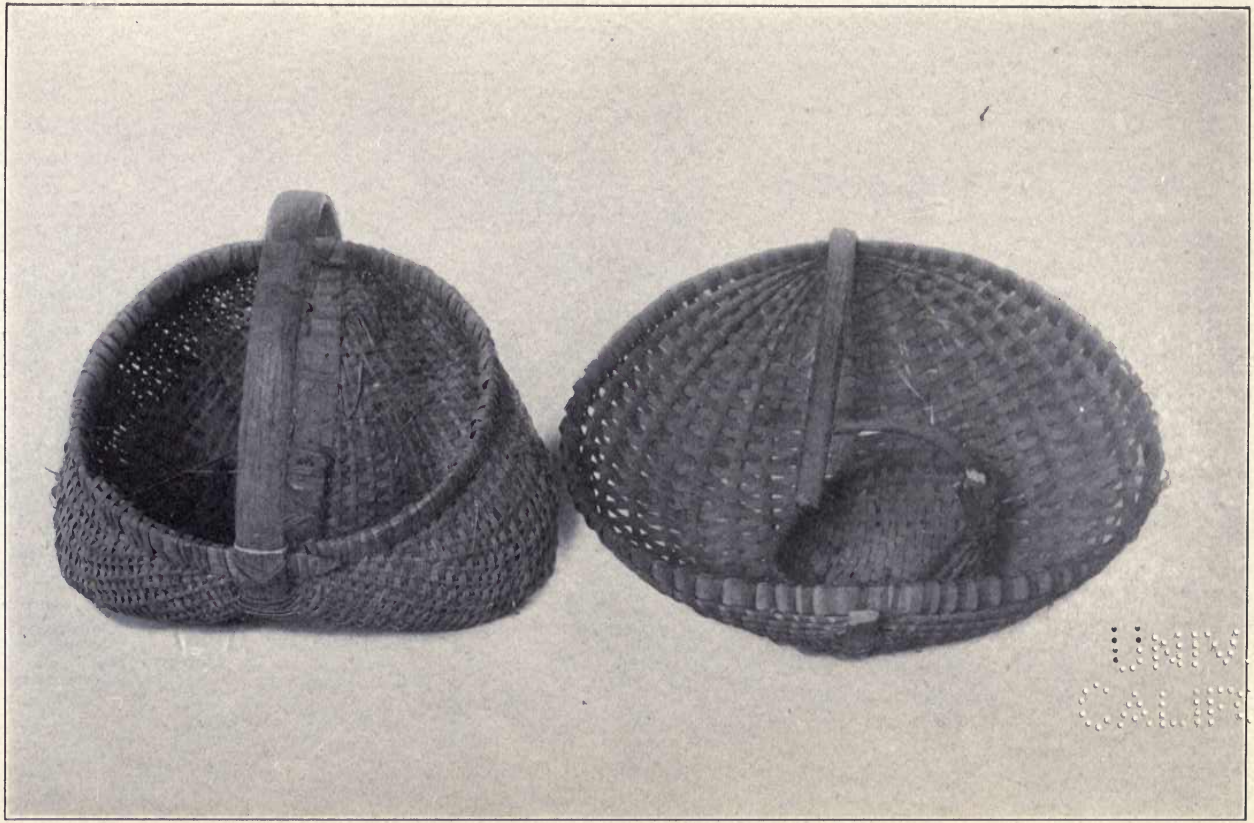
The gathering of the autumn berries was regarded more of a pastime than work. In fact, work with these people in many lines was made easier by its social character, and seemed more like a game where the thrill of it all kept the thought of fatigue away.

The work of berrying was left of course to the women and girls. They would go in groups to the places where patches of the vines and bushes grew and sing their folksongs as they gathered the fruit. Every one laughed or sang and picked as fast as their two hands could touch the berries. The picking baskets yiondasste"nondakwa' held about 5 quarts. They were suspended from the back of the neck and the chest, one fore, the other aft. The forward basket lay against the abdomen so that it was within easy reach. This being filled the berries were covered with sumac or basswood leaves held in place by two sticks, slung to the rear, the rear basket brought forward and filled. The two baskets were then carried to a larger basket holding about ½ bushel. One large basket and the two picking baskets full of berries constituted a load for a woman to carry.

Huckleberries were raked from the bushes with the fingers. Swamp huckleberries, bushes that grew along streams running through marshes, were bent over into a canoe and stripped of their berries which fell into large containing baskets. In picking mountain huckleberries or those which grew in snake infested places the moccasins were smeared with lard to frighten away the rattlers. The snakes, scenting the hog fat, would think that pigs were scouting for them.

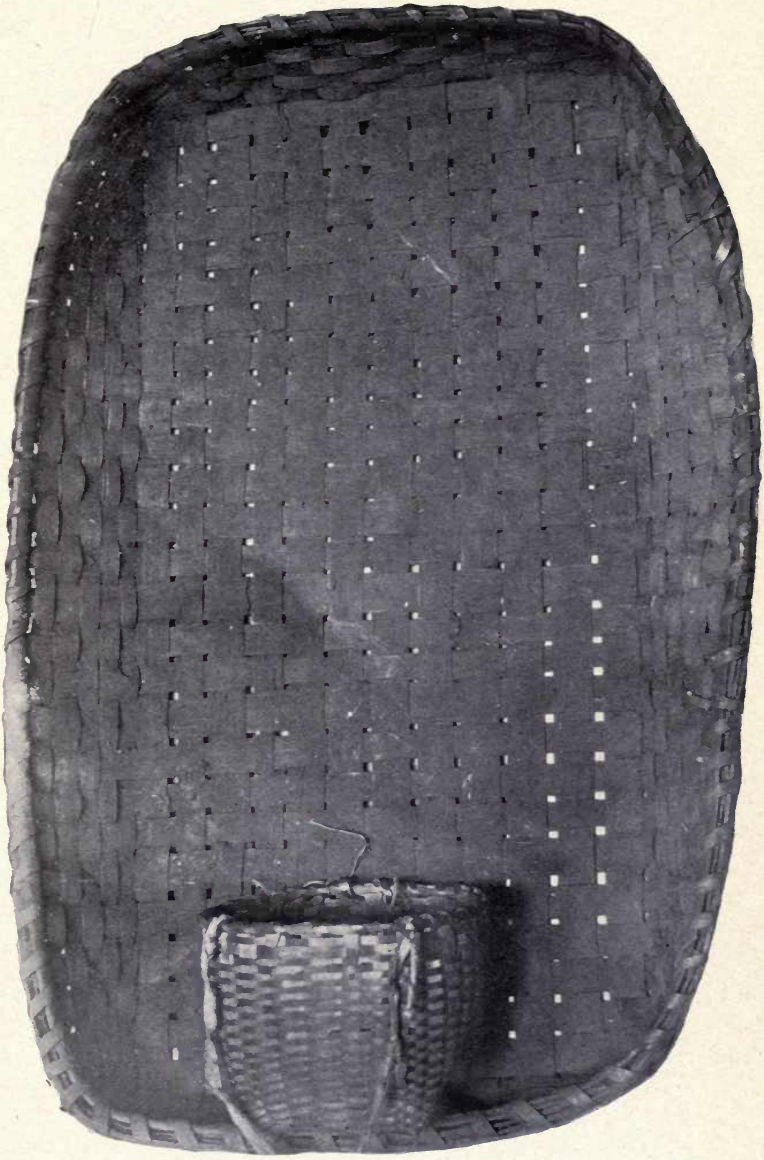
This description of the berry-picking industry applies to a large extent to the Iroquois of the present day, especially the Seneca along the Cattaraugus, Allegany and Tonawanda.

The first fruit of the year is the wild strawberry and this the Iroquois takes as a symbol of the Creator's renewed promise of beneficence. Quantities are gathered and brought to the feast-makers at the Long House for the Strawberry Thanksgiving. This is an annual ceremony of importance though it lasts but a day.



Types of melon baskets, used for gathering berries. 1 Cherokee specimen; 2, 3 Oneida specimens. Illustrations are about one quarter actual size. Collected for the State Museum by M. R. Harrington, 1910

Plate 30



Seneca evaporating tray and berry picker's basket. The evaporating tray is used for green corn, pulpy fruits and berries. The tray is 40 inches in length. E. R. Burmaster, collector, 1910

Cache of charred acorns excavated by Harrington and Parker, 1903 (Peabody Museum of Archeology and Ethnology Expedition) on the Silverheels site, Brant township, Erie county, N. Y.

The thrifty housewife examines the teeth of the June mullet which her husband has caught in the creeks to see if the base of its teeth is black. If so, it is an omen of a good blackberry year. A legend states that frost will never come when blackberries are in blossom in berry. Hă'tho, the frost spirit, once entered the lodge of O'swi'nodă', the summer spirit, but a boy entering and seeing the strange cold spirit in his father's house threw a pot of hot blackberry sauce in the frost spirit's face to his intense discomfort. Thereafter Hă''tho never ventured from his hiding place in the north from the time blackberries blossom until the fruit is mature. Blackberry juice makes a fine drink in the winter for it frightens away the cold. "Do not even bears eat berries all summer and defy the blasts of winter?" Blackberry roots are considered an effectual astringent and the tender new shoots as a fine blood remedy.

Thimble berries were eaten in the late summer as a diuretic. Dried for winter use they were valued for the same purpose. Sumac bobs were boiled in winter for a drink.

XVI FOOD NUTS OF THE IROQUOIS

Nuts formed an important part of the Iroquois diet. Great quantities were consumed during the nut season and quantities were stored for winter use. The nut season to the Iroquois was one of the happiest periods of the year[1] especially for the young people to whom fell the work of gathering most of the nuts. The women, however, often went in companies when serious business was meant, for with the failure of other crops, nuts formed an important food source. The nut season was called o'wadawisa'ho'^{n}.

The favorite food nuts of the Iroquois were hickory and chestnuts though other nuts were valued: A list of the principal nuts used by the Iroquois follows:

Acorns	*Quercus* (sp)	ogowä''
Beechnuts	*Fagus grandifolia*	oskä^{n}'ä
Black walnuts	*Juglans nigra*	djonyot'gwak
Butternuts	*J. cinerea*	djonot'gwes
Chestnuts	*Castanea dentata*	onye''sta
Hickory, bitter	*Carya cordiformis*	onio^{n}gwadjiwagĕ^{n}
Hickory	*Carya ovata*	djistagä'o^{n}
Hazel	*Corylus americana*	oso'wishä'

[1] *See* Relation of 1670, ch. IX.

Terminology

Nut	onio''gwă'
Husk or shucks	goktdo^{n}''tso^{n}
Shells	oktdă''
I shuck them	o'gekdo^{n}tci'
Meats	oniä''
Burs	osi'gä'
I crack nuts	degadēnŭt'dyăk
Pitted nut stone	dyiodedă'kwĕ^{n}
Stone hammer	ye^{n}yĕ^{n}'dăkwă'
Entire outfit for cracking nuts	ge'ondeniya''dăktă'
Nut meal	onia''degai'to^{n}'
Nut oil	onia''deyo^{n}no^{n}go
Nut milk	oniä'ono^{n}''gwă'
It is cracked	deganyo''dyă'go^{n}
Rancid meats	oniät'gä'
Good meats	ōnye'iu'
[1]Ripe meats	onie''stai'
Ripe (on tree)	o'wadawis'a'
Ripe (on ground)	odawis'sa^{n}o^{n}
It is not ripe	doodawis'sa'o^{n}
Nut time	o'wadawis'aho^{n}'
Roasted chestnut	wade'nyistdondŭk
Boiled	ganie''stok
Entire nut meat	[2]deyut'hage^{n}'o^{n}
I gather nuts	ogeniogwe'oek
They are gathering	hadinio'gwe'oek

Fresh nut meats were crushed in wooden bowls. The crushed meats were then thrown into a kettle of boiling water and the oil skimmed off. This oil was kept as a delicacy to be used with corn bread and puddings. Hickory and butternut oil was regarded especially palatable, the former being used for feeding infants. After the nut meats and oil were skimmed out the liquid was used as a drink. The crushed meats were often mixed with corn pudding or bread.

Chestnuts were boiled and the mealy interior used for puddings or the dried meats were pounded into a flour and mixed with bread meal to give the bread flavor.

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[1] Means also boiled chestnut meats.

[2] Means *Spreads its legs.*

Acorns were boiled in lye and roasted[1] much as corn was to remove the bitterness, and after several washings pounded up in a mortar and mixed with meal or meat and made into soup or pudding. Children even now commonly eat raw acorns but their elders at present seldom use them for cooking. Their former employment remains only a memory.

The name hickory in its original uncorrupted form is derived from the name given by the Virginia Indians to a food or flavoring liquor prepared from a nut meat emulsion. John Smith in 1612 described this nut preparation as follows: "Then doe they dry them againe upon a mat over a hurdle. After they put it into a morter of wood and beat it very small: that done they mix it with water that the shells may sink to the bottome. This water will be coloured as milk; which they call *Pawcohiccora* and *keepe it for their use*."[2]

The original Lenape form of the word according to William Gerard[3] was patahikareo.

For cracking nuts cuplike depressions, the size of the nut were picked into small boulders or slabs of shale. The nut was placed in the depression and cracked or crushed with a suitable stone. These "nut stones" and hammers were used on the various reservations up to within a few years and there are many Indians in New York State who can remember having used them. These stones are to be found today near large old nut trees and the writer in his childhood days often hunted about for them in his grandfather's back fields and used them for the purpose previously mentioned. In the Cattaraugus valley where black walnut trees once were plentiful these nut stones are common. The Seneca call the pitted nut stone dyiodedă'kwĕⁿ. The hammer is called yeⁿyĕⁿ'dăkwă' and the entire nut cracking outfit deyondeniya"dăktă'.

The Seneca say that in the early days dry butternut and hickory meats were pulverized and mixed with dried bear or deer meat pul-

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[1] ". . . they search for — even acorns, which they value as highly as corn; after having dried these, they roast them in a kittle with ashes, in order to take away their bitterness. As for me, I eat them dry, and they take the place of bread." Rale. 1716–27. Jesuit Relations. 67:215; *cf. also* 1610, p. 243; Lawson, p. 178.

[2] Smith. Map of Virginia (1612) p. 12. *Cf.* Strachey. History of Travile into Virginia (1616); Norwood Voyage to Virginia (1649), p. 37; Beverly. History of Virginia (1705). Bk 2, p. 16.

[3] Am. Anthropologist, New ser. v. 9, no. 1, Jan.-Mar. 1907. p. 92.

verized in a mortar. This powder was thrown in a quantity of boiling water and used as a baby food.

The nursing bottle was a dried and greased bear-gut. The nipple was a bird's quill around which was tied the gut to give proper size. To clean these bottles they were untied at both ends, turned wrong side out, rinsed in warm water, thrown into cold water, shaken and hung in the smoke to dry.

Sunflower oil was used in quantities by the Iroquois, with whom it was a favorite food oil. It was prepared by bruising the ripe seed in a mortar, heating the mass for a half hour and then throwing it into boiling water until most of the oil had been separated from the pulp. The water was cooled and strained and then the oil skimmed off.

The use of this oil is mentioned elsewhere in this work.

XVII SAP AND BARK FOODS

The maple tree was one of the trees venerated by the Iroquois. It was in fact the goddess of trees and the only one to which a stated ceremony was dedicated and to which offerings were made. Pine, hemlock, elm and basswood of the forest trees were esteemed, but the maple was a special gift of the Creator and every spring at the foot of the largest maple tree in each village a ceremonial fire was built and a prayer chanted by the Keeper of the Maple Thanksgiving ceremony as he threw upon the embers pinches of sacred incense tobacco. The maple tree started the year. Its returning and rising sap to the Indian was the sign of the Creator's renewed covenant.

The Iroquois will ever remember the maple tree, but few now even remember the tradition of how it was, during the maple sap season, that the Laurentian Iroquois[1] struck their blow for freedom from Adirondack domination and fled into northern and central New York.[2]

Trees were probably tapped in early times by sawing a slanting gash into the trunk with a chert knife or saw. A flat stick was driven

[1] The Mohawk, the Oneida and Onondaga.

[2] One Mohawk tradition relates that the women flung hot maple sap into the faces of the Algonquin chiefs and thus helped their people in the fight for independence.

into the gash and the sap run down over it into bark tubs. For boiling the sap the Iroquois had in early times only their clay vessels but these were suitable receptacles though their capacity was small.

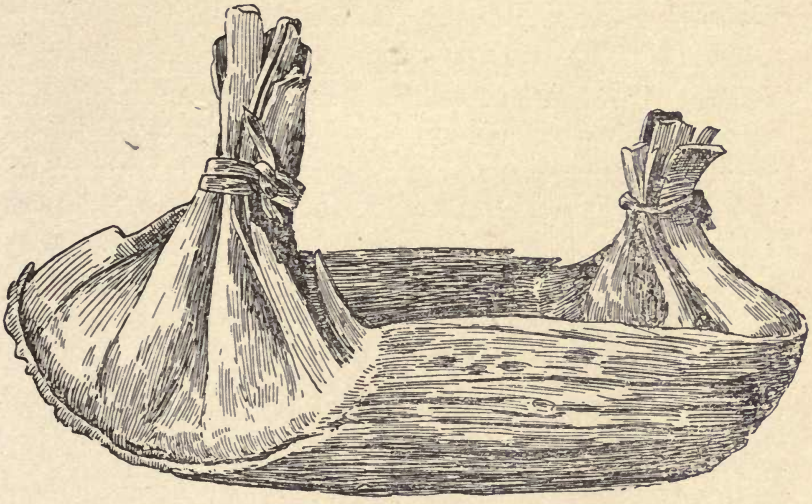

Fig. 23 Seneca sap basket or tub of elm bark, collected by L. H. Morgan. Specimen is 18 inches in length.

Maple sap was drunk as it came from the tree[1] and, fermented, was some times used as an intoxicant, the only record of such a thing which the writer has been able to find as used anciently by the Iroquois. When fermentation went too far a vinegar was produced which was highly esteemed. It was called wat'dă dyonoⁿga'yotdjis.

The sugar syrup was sometimes poured into the empty shells of quail and duck eggs and these sugar eggs were valued by travelers.

One of the best early descriptions of maple sugar making has been left us by Lahontan whose description follows:

The maple-tree . . . yields a sap, which has a much pleasanter Taste than the best Limonade or Cherry Water, and makes the wholesomest Drink in the World. The Liquor is drawn by cutting the Tree two Inches deep into the Wood, the cut being run sloping to the Length of ten or twelve Inches. At the lower End of the Gash, a knife is thrust into the Tree slopingly so the Water running along the Cut or Gash, and falling upon the Knife that lies across the Channel, runs out upon the Knife, which has Vessels placed underneath to receive it. Some Trees will yield five or six Bottles of this Water

[1] Lahontan, 2:59.

a Day; and some Inhabitants of Canada, might draw twenty Hogsheads of it in one day, if they would thus cut and notch all the Mapples on their respective Plantations. The gash do's no harm to the tree. Of this Sap they make Sugar and Syrup, which is so valuable that there can't be a better Remedy for fortifying the Stomach.[1]

Bark was eaten by certain Indian tribes but seldom if ever by the Iroquois. Their ancient enemies and captors, the Adirondacks,[2] (in Seneca, *Hadi'ondas*, in Mohawk, *Adirhōn'daks*, meaning, *tree eaters*) ate bark in quantities. They were especially fond of the inside bark of the top of the pine especially in the spring when it was full of sweet sap.

The Iroquois in emergencies ate elm and basswood bark[3] and perhaps other barks but it was never a general article of diet. Sassafras bark and root as a carminative and aromatic was regarded with favor, as were several other spicy barks.

Maple	wat'dă'
Sap	owä^{n}'no^{n}gi'
Sugar	owä^{n}'no^{n}
Syrup	owä^{n}'no^{n}gi'
Boiling sap	goste"do^{n}
Saptime	o'gä'not
Sap runs	o'gä'not
He taps	ha'ge'o'tă
Sap spout	nio^{n}'geodă'kwa

XVIII FOOD ROOTS, Okdea

Root foods were not despised by the Iroquois but with few exceptions they were seldom used unless the scarcity of other foods made it necessary. It is difficult at this time to enumerate all the food roots used by the Iroquois since they have long since ceased to use wild roots and tubers as food, preferring, of course, cultivated

[1] Lahontan. New Voyages to America. Lond. 1735. 1:249.

[2] Tree Eaters, a people so called (living between 300 and 400 miles west into the land) from their only *Mihtuchquash*, that is trees: They are Men-eaters, they set no corne, but live on the *bark* of *Chestnut* and *Walnut* and other fine trees: They dry and eat this *bark* with the fat of beasts, and sometimes men . . ." Roger Williams. Key. Reprint R. I. Hist. Soc. Col. Providence 1827. vol. 1.

Rale mentions the use of green oak bark and "a kind of wood" which he was compelled to eat for want of anything better while among the Indians of the north St Lawrence valley. Jesuit Relations, 67:223.

[3] *See* Swetland. Captivity.

varieties. Even wild onions and artichokes are now seldom used. There is a dim recollection of food roots, however, and the writer succeeded in getting the list which follows:

Artichokes	*Helianthus tuberosus*	otwĕⁿ′ä′
Ground nuts	*Apios tuberosa*	yoandjagoⁿ′
Wild onions	*Allium canadense*	gahadagoⁿka‘
Wild leek	*A. tricoccum*	o′no′saoⁿ
Yellow pond lily	*Nymphaea advena*	owäⁿ′osha′
Cat-tail	*Scirpus validus*	onoⁿ′′gwĕⁿdă
Arrowhead	*Sagittaria latifolia*	ooⁿwa′ho′noⁿ′
Indian turnip	*Arisaema triphyllum*	gä′oshä‘
Milkweed	*Asclepias syriaca*	ono′skä′
Solomon's seal	*Polygonatum biflorum*	ga′ga′wiyas
	P. commetatum	(= crow eats it)
Potato	*Solanum tuberosum*	onon′oⁿ′dă′
Skunk cabbage	*Symplocarpus foeditus*	niagwai′′igas (= bear eats it)

Terminology

ENGLISH	SENECA
Root	okde′ä‘
I pull roots	o‘gik′teodagok
Root gatherer	hakde′ogwas
Root eater	[1]hakde′äs

Artichokes were valued for their tasteful tubers which were edible raw as well as cooked. The boiled artichokes formed a dish which if properly seasoned with oil had some degree of palatability. Artichokes as food was early noted by explorers[2] and later writers mention their use. Champlain is the first writer to note their cultivation.[3] The Iroquois so far as it has been possible for the writer to

[1] Hak-de′-äs, from *h,* masculine affix; okde′ä‘, root; initial *o* changes to broad *ă*. terminal *ä‘* is elided; iäs or ias, in compounds meaning *eater of,* loses initial *i* after *e* thus h-akde-äs, *he root eats.*

[2] On September 21, 1605, Champlain wrote of his explorations along the New England coast, ". . . We saw . . . very good roots which the savage cultivate, having a taste similar to that of chards." Elsewhere it was stated that these roots were Jerusalem artichokes. The Rev. Edmund F. Shafter commenting on this subject says that the Italians had procured these tubers for cultivation before Champlain's time, calling them girasole, corrupted and anglicized to Jerusalem.

[3] Champlain. Voyages. 11:112 footnote. Prince Soc. Bost. Pub. 1878.

inquire, never cultivated the plant but it frequently grew in their cornfields on flat lands along streams, and roots, raw or roasted, furnished food for the camp dinners of husking parties. Some women became especially fond of the tubers and were called otwäĕⁿyas, *artichoke eaters,* a name which survives today among the Seneca.

Ground nuts, yoändjagoⁿ′oⁿ‘, were used in considerable quantities up to within the past 25 years. Their use early attracted the attention of explorers.[1] The ground nut was the favorite root food of a captive tribe, according to a tradition, and became the totem name of a clan.[2]

The plant grows on the rich alluvial bottom lands and the tubers which are strung along on the roots are easily dug and when boiled or roasted furnish a food which can be made palatable.

Several early writers mention the ground nuts used by the Indians, among them Peter Kalm, whose account follows:

> Hopniss or hapniss was the Indian name of a wild plant which they ate at that time. The Sweedes still call it by that name and it grows in the meadows in good soil. The roots resemble potatoes, and were boiled by the Indians, who eat them instead of bread. Some of the Sweedes at that time likewise ate this root for want of bread. Some of the English still eat them instead of potatoes. Mr Bartram told me that the Indians who live further in the country not only eat these roots which are equal in goodness to potatoes, but likewise take the pease which lie in the pods of the plant, and prepare them like common pease.[3]

In the Paris Documents of 1666, is an account of the Iroquois who are there said to be divided into nine tribes the sixth of which was the Sconescheronon, or Potato People. A drawing is appended showing a string of potatoes as the tribe's totem. There is now only a dim recollection of this clan whose name and symbol was the ground nut rather than the potato.

Indian turnips,[4] gä′osha, at first though, scarcely seem an inviting food. The acrid repugnant taste of the fresh root leaves an impression not soon forgotten. The juice is an actual poison if used

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[1] Ground nuts are probably what the French called "des chaplets, pource qu'elle est destingue par noends en forme de graeaes." Jesuit Relations 1634. p. 36.

[2] *See* Documentary History New York. 1:10.

[3] Kalm. Travels in North America. Lond. 1772. *See* Pinkerton. Voyages. Lond. 1812. 13:533.

[4] Synonyms: Jack-in-pulpit, wake-robin,

even in a small quantity and yet there seems to be good historical[1] evidence of the use of the root as food, not only by Indians but by white men as well. Harris has made a special study of this root and embodied a most interesting account of it in the Proceedings of the Rochester Academy, volume 1.

To prepare the roots they were sliced and dried and pulverized. Harris by inquiries among the old residents of the Genesee valley, found that the pioneers of that region had used the powdered roots of the Arum triphyllum as a substitute for flour and that they had obtained the receipt from the Seneca.[2]

Wild onions and leeks though often eaten raw with meat were a favorite substance for making soups. The onions were boiled and seasoned with oil. The writer was unable to find that onions were used as a flavoring for other soups or foods. The Iroquois seemed to like their onions in an unadulterated form.

The Iroquois have about forgotten the ancient use of yellow pond lily roots but a few old people were able to describe their use as food. The tuberous roots were gathered in the fall by treading them out with the toes and then scooping them up. When it is realized that the roots generally grew in 5 or 6 feet of water the difficulty of procuring them may be realized. A few Indians filched them from muskrat houses[3] but for superstitious reasons the practice never became general. Water animals were considered powerful magic agents and were thought to visit frightful vengeance when outraged. They might be killed for their meat or pelts but never robbed of their roots without special ceremonies.

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[1] "Cos-cus-haw groweth in very muddy pools and moist ground. The juice is poison, and therefore heed must be taken before anything be made therewithal; either the roots must first be sliced and dried and then being pounded into a flour, will make good bread; or else while they are green they are to be pared, cut in pieces and stamped [pounded]; loaves of the same to be laid near or over the fire until sour, and then being well pounded again, bread or spoonmeat, very good in taste and very wholesome, may be made thereof." Thomas Hariot, Virginia 1585.

"The chief food they have for food is called loc-ka-whough. It grows in the marshes . . . and is much of the greatness and taste of potatoes . . . Raw it is no better than poison, and being roasted, except it be tender and the heat abated, mixed with sorrel or meal, it will prick and torment the throat extremely; yet in summer they use this ordinarily for bread." Smith. Virginia. 1606. *See* Harris. Root Foods. Rochester Acad. Proc. 1:111 et seq. *Cf. also* Carver's Travels; Kalm, *see* Pinkerton. Voyages, 13:534.

[2] Harris. Root Foods. Roch. Acad. Proc. Rochester, 1891. 1:113.

[3] Harris, page 115, says it was the usual custom when hunting the little animals (muskrats) to search their houses for roots. This was probably the case only when the muskrats were killed.

The roots of the yellow pond lily are porous and somewhat sweet and glutinous. They were either boiled with meat or roasted. Early explorers frequently mentioned the use of these roots and left interesting descriptions. Few, however, agree as to their taste. Some say that they tasted like the liver of a sheep,[1] others that they tasted like licorice and still others possibly in the throes of starvation enthusiastically describe their fine flavor. Pond lily roots are one of the most widely known food roots on the continent and were eaten from eastern Canada to the Pacific coast.

The roots of the cat-tail were often used. Dried[2] and pulverized the roots made a sweet white flour useful for bread or pudding. Bruised and boiled fresh a syrupy gluten was obtained in which corn meal pudding was mixed.

My Abenaki informants told me that the juice from the bruised roots was eaten raw with bread within very recent years.

Arrowhead tubers[3] were esteemed as good if boiled. Sometimes they were eaten raw but in this state the bitter milky juice made them repugnant to any one but a starving person.

Kalm says that the Swedes of New Sweden called the root Katniss after the Indian name and that the Indians boiled the root or roasted it in ashes.[4]

The potato is a native American plant[5] but it seemed to have

[1] "The Indians eat the roots which are long aboiling. They taste like the liver of a sheep. The moose deer feed much upon them; at which time the Indians kill them when they have their heads under water." Josselyn. New England Rarities Discovered. London 1672. p. 105–238. Reprint Am. Antiq. Soc. Trans. v. IV. Bost. 1860. *Cf.* Pickering. Chronological History of Plants. Bost. 1879; Le Jeune. Relation 1633–34, p. 273.

[2] *See* Palmer, E. U. S. Dep't Agric. Rept. 1870. Washington 1871. p. 408.

[3] *Ibid.* p. 408.

[4] Pinkerton. Voyages, 13:533.

[5] The potato was certainly indigenous. Sir Walter Raleigh, in his efforts to colonization, had it brought from Virginia, under the original name of *openawg*. But none of the North American tribes are known to have cultivated it. They dug it up, like other indigenous edible roots from the forest. But it has long been introduced into their villages and spread over the northern latitudes far beyond the present limit of zea maize. Its cultivation is so easy and so similar to that of the favorite corn, and its yield so great that it is remarkable it should not have received more general attention from all the tribes. Schoolcraft. Census of the Iroquois. 1845. p. 12–13. Senate Document 24, Albany 1846.

Hariot who came to Virginia with Raleigh in 1584 described potatoes as Openawk, "a kind of root of round form, some of the bigness of walnuts." In 1586 the openawk were carried back to England and later in 1597 were figured by Gerard under the name of Potato of Virginia. *Cf.* Harris, p. 109.

been cultivated but little before the colonial period. After and during that time however the Iroquois began to plant potatoes in increasing quantities until now as a food they are consumed in greater quantities than corn. To give the Indian method of preparing potatoes for food now would be merely to repeat what every modern cookbook gives. Their favorite recipes, however, were potato soup, boiled and baked potatoes. Distinctive flavoring was given by mixing in bear oil, sunflower oil and white ashes. Potatoes were sometimes dried and made into a flour.

The Seneca cultivated the potato long before the Revolutionary War. To them it was known as onon'ondă' while groundnuts were often called onon'ondă'oñ'wĕⁿ, original potatoes.

The root of Solomon's seal is said to have been used for food. The mature roots were gathered in the fall, dried, pounded and worked up into bread. Harris cites that a Seneca Indian in passing through Highland Park, Rochester, called the attention of his white companion John Nott to the plant saying it was once highly prized for its root.

The roots of skunk cabbage *Lymplocarpus foetidus* were also used being dried and pulverized. Harris says it was sometimes roasted or baked to extract its juice. The modern Seneca call it bear root.

The stalk of the milkweed rises from a tuberous root of considerable size. Western Indians it is said boil these roots for food. One writer[1] says that the Sioux gather the roots early in the morning while the dew is on the plant and prepare a crude sugar from them. He also states that the young seed pods are eaten after boiling them with buffalo meat and that the young stalks were used as white men use asparagus.

Wild rice was an important food of the Indians of the eastern portion of the continent, especially along the great lakes and the Mississippi valley. It was little used by the Iroquois however, although there are records of its employment. The Seneca some 40 years ago gathered a great quantity of it but the writer does not know of its use subsequently.

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[1] Palmer, Dr E. U. S. Agric. Com'n Rep't 1870, p. 405.

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New York State Education Department

New York State Museum

JOHN M. CLARKE, Director

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The annual reports of the original Natural History Survey, 1837–41, are out of print.

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Bound also with museum reports 21–date of which they form a part; the first Botanist's report appeared in the 21st museum report and is numbered 21. Reports 21–24, 29, 31–41 were not published separately.

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Museum bulletins 1887–date. 8vo. *To advance subscribers, $2 a year or $1 a year for division* (1) *geology, economic geology, paleontology, mineralogy; 50c each for divisions* (2) *general zoology, archeology and miscellaneous,* (3) *botany,* (4) *entomology.*

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*Rochester and Ontario Beach quadrangles. Mus. bul. 114. 20c.

*Long Lake quadrangle. Mus. bul. 115. Free.

*Nunda-Portage quadrangles. Mus. bul. 118. 20c.

*Remsen quadrangle. Mus. bul. 126. 1908. Free.

*Geneva-Ovid quadrangles. Mus. bul. 128. 1909. 20c.

*Port Leyden quadrangle. Mus. bul. 135. 1910. Free.

*Auburn-Genoa quadrangles. Mus. bul. 137. 1910. 20c.

*Elizabethtown and Port Henry quadrangles. Mus. bul. 138. 1910. 15c.