tific flair. Johnny planted apple seeds, and sold or bartered or gave away the seedling trees from the nurseries he established throughout the frontier wilderness. He had an uncanny foresight for selecting nursery sites where farm clusters and towns were later to be established. He was a yankee peddler of whom New England can be proud. He loved nature. He was a conservationist and an environmentalist long before these terms were coined.

While he knew most of the apple varieties or cultivars—this modern day term would have thrown him—of the late 1700's from his boyhood days in western Massachusetts and later in western Pennsylvania; and while he probably knew all about budding and grafting, his religious philosophy apparently precluded "tampering with God's natural creations." He did no varietal propagation. He stuck to the seedlings he raised from seed and left it to the pioneer farmers to bud or graft the trees to the varieties they preferred and/or for which they could obtain scion wood from travelers coming west across the Alleghenies.

'Summer Rambo' was reportedly a favorite of Johnny's, and he knew well the 'Winesap', 'R. I. Greening', 'Baldwin', 'Roxbury Russet', 'Spitzenberg', 'Maiden Blush' and other varieties of the period.

John Chapman was a quaint mixture of a number of vocations, as was often the case in early pioneer days when a sparse population and necessity challenged many men to fill dual roles. He was a nurseryman, a missionary, a war hero, a newsman, and a peacemaker, among other things.

When he died near Fort Wayne, Indiana, in the spring of 1845, still planting and tending his apple tree nurseries and preaching "good news right fresh from Heaven," he was already as much legend as real life folk hero. . . . And the years have only added more chapters. Historians, poets, artists and fiction writers have all been enthralled by his life and deeds. American art and literature is enriched with their work—and by Chapman's life.

John Chapman did hear a different drummer and marched to a different cadence than most men of his time. In his own unique way he added greatly to the development of our nation and enriched its history. For the apple industry he gave a special blessing. Not only was he an apple tree nurseryman, but he has become a great apple salesman as well. Thank you Johnny Appleseed.

Genetic and Climatic Influences on Apple Attractiveness[1]

JAMES B. MOWRY[2]

In common with hereditary characters of other living organisms, the appearance (phenotype) of a specific characteristic results from the interaction of the genetic factors (genotype) of the organism directing development under the influence of the environment surrounding the organism. The hereditary factors determine the possible limits of development,

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and environmental factors influence the degree of development attained. Thus, the 'Delicious' apple variety possesses genetic factors which permit a characteristic pattern and intensity of red overcolor when the fruit is exposed to adequate light intensity, but the red overcolor will not appear when the fruit is exposed to very low light intensities during development.

The American Pomological Society encourages the organization of fruit displays to inform breeders and variety testers about the comparative features of fruit varieties. At a good apple variety display (1) it is possible to (a) compare the appearance of a single variety as produced in several geographic regions, (b) compare the appearance of a variety with a number of its budsports, all produced in the same year in the same geographic region, and (c) become familiar with new or uncommon varieties from specific apple producing regions.

In July, 1974, a letter was sent to 12 experiment stations and 3 large nurseries requesting their cooperation in supplying fruit samples of as many varieties as possible from an accompanying list of 50 varieties. The committee acknowledges, with gratitude, the excellent cooperation rendered by interested individuals at the University of Arkansas, University of Illinois, Purdue University, Michigan State University, Missouri State Fruit Experiment Station, New York State Agricultural Experiment Station (Geneva), Ohio Agricultural Research and Development Center (Wooster), Hilltop Nurseries and Stark Bros. Nurseries.

Display samples were requested to be good representative specimens of the varieties as grown in the respective geographic regions. The wide range of maturity dates and harvest dates in different regions dictated relatively long periods of cold storage and long distance shipment which certainly affected the condition of certain apple samples on display. Firmness and quality of the samples may not be truly representative of the variety. This display, in January 1975, included 250 plate samples of approximately 150 varieties grown in 10 states.

In a group of varieties, the order of maturity is fairly constant, although the calendar maturity date for a variety varies widely in different growing regions and seasons. Therefore, the quoted calendar maturity date of an unfamiliar variety in some distant place is of little value in deciding the maturity date of that variety when grown at the orchard. Where available, the calendar harvest date was noted on the sample label. In addition, the label showed the harvest date in weeks before (—) or after (+) the maturity date of 'Delicious' (0), the most widely-grown apple variety in the United States. The grower can readily place the unknown variety in the harvest sequence at his home orchard. The sample label also indicated the specific budsport name under the parent variety name and the location where the sample was grown. An effort was made to group the samples in the display by variety to facilitate comparisons of climatic influences on a specific variety or the compare budsports with the parent variety.

The evaluation for attractiveness is a summary of the impressions given by the ground color, the red overcolor and the skin finish. (3). A yellow ground color contributes brightness to the red overcolor. Red overcolor is described in terms of the percentage of surface covered, the intensity of red color (light, medium or dark), and the type of distribution (blush, stripe or splash). The solid blush pattern of red overcolor is more attractive than the striped or splashed

pattern in regions where adequate red overcolor development is a serious problem. Skin finish involves freedom from russet or scarf skin; prominance of dots; and waxy, oily or bloom surface deposits.

Mowry (2) reviewed the effect of climatic factors on fruit characteristics associated with attractiveness of apple varieties. The development of anthocyanin pigments responsible for red overcolor was favored by high light intensity. Water vapor in the atmosphere (vapor pressure or absolute humidity) blocks the ultraviolet wavelengths in solar radiation and reduces red overcolor development on apple fruits to the extent that light intensity is reduced. Absolute humidity was closely associated with precipitation and associated cloudiness which also directly reduces light intensity. High absolute humidity and high average temperatures favor enlargement of dots and russet formation which detracts from apple attractiveness. Very cool temperatures near bloom favor russet formation on the skin. However, relatively cool temperatures in the month before maturity favors destruction of chlorophyll (causing green ground color) in maturing fruits and permits the appearance of yellow ground color pigments which brighten the red overcolor. In summary, low precipitation (humidity) and low average temperatures during the growing season interact to foster more attractive apple fruits at maturity.

Poor climatic adaptation may be expected if the variety was imported from a region of origin where the climate and soil is considerably different. Red apple varieties generally tend to develop greater red overcolor when grown in producing regions farther north or at higher altitude than their region of origin.

Southern Illinois is a region of climatic transition affecting the attractiveness of apple varieties (4). The only reliable way to select varieties adapted to southern Illinois is to grow them for evaluation. Most commercial varieties may be expected to be attractive in northern and central Illinois, but varieties for sites south of Springfield should be selected for their ability to produce attractive fruits under the detrimental climatic conditions of high absolute humidity and high average temperatures which prevail during the growing season. Many varieties have not been climatically adapted, but certain varieties produce very attractive fruits: 'Quinte', 'Tydeman's Red', 'Prima', 'Ozark Ruby', 'Paulared', 'Jonared', 'Jonee', 'Starkrimson', 'Royal Red Delicious', 'Crandall', 'Holiday', 'Connell Red', 'Gallia', 'Law Rome', 'Ruby' and 'Winesap'.

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