Wayne's World

Petroleum historian Wayne Henderson recalls some of the advances that have shaped our industry. Enjoy his “family album.”

Highlights from a Petroleum Historian´s Collection
Dedicated and dynamic people, maybe even some of them our ancestors, spent their lives creating a technological legacy that has shaped the world in which we live. The “first generation” of petroleum equipment, which they so proudly unveiled and assumed would survive through time, has become the “granddaddies.” Now, we tend to view them as “quaint,” possibly as even “crude.” And yet, children of our children may well survey our times and technologies with similar attitudes. Here, viewed from Wayne Henderson’s perspective, let us reverse the process. Let us honor some of the distant “cousins” of the state-of-the-art products and places that we build and service on a daily basis in the hope that future generations will one day honor our legacy as well.

1891

Bowser Kerosene Pump

The Bowser pump was the first practical pumping unit for the retail dispensing of petroleum products. The tank and pump were offered as a single unit and kept in an out-of-the-way place in the store. Bowser, and its successor company Keene Manufacturing, would continue to make pumps until 1977. Shown here is an early Bowser-type pump, which was generally mounted atop a steel tank within a wooden cabinet and used for dispensing kerosene. Courtesy of Petroleum Collectibles Monthly (PCM).

1901

Tokheim Dome Oil Pump

One of the earliest devices for dispensing petroleum products is this Tokheim Dome Oil Pump, circa 1901. It is complete with a graduated measuring cyclinder. Most of these were used for kerosene or for lubricants. Courtesy of PCM.

1902

Underground Fuel Storage Tanks

The first tanks manufactured were specifically designed for underground installation to take advantage of enhanced safety and practicality. Hand-operated pumps, such as the Dome Oil Pump, were used to dispense fuel from these tanks.

1903

Cabinet Model Tank and Pump Outfits

Wayne introduced a kerosene storage tank for retail sales that was enclosed in a wooden cabinet. Walnut paneling hid the steel tank, and additional cabinetry surrounded the pumping unit that was mounted on top of the tank.

1905

Bowser “Filling Stations”

Here is the first practical curb pump for filling automobiles. A tank was enclosed in a wooden cabinet with a pump mounted on top, enclosed in an attached shed-like structure.

1905

First Retail Establishment

The “Automobile Gasoline Company” in St. Louis, Missouri, opened the first retail establishment devoted solely to the retailing of motor fuels. That station, a conversion of a former livery stable, does not qualify as a “built-for-the-purpose” filling station but, nevertheless, deserves its rightful place in history. The company eventually sold out to Sinclair Oil.

1907

Automobile Fueling Hose

The first fueling of automobiles in which gasoline was dispensed directly from storage (an aboveground tank) into the automobile fuel tank using a flexible hose took place at a Standard Oil Company of California bulk plant in Seattle, Washington. Following this introduction, many of the existing cabinet and free-standing model curb pumps were fitted with a hose for product delivery, eliminating the need for buckets and funnels. To this day, some manufacturers refer to any gas pump hose as a “curb pump hose.” Shown here is an early aboveground tank used for this purpose. Courtesy of PCM.

1910

First Gasoline Hand Pump Specifically for Use With USTs

Gilbert & Barker Manufacturing Company of West Springfield, Massachusetts, is today known as Gilbarco. The company developed the first hand-operated pump specifically for use with underground tanks for the retail dispensing of gasoline. Earlier devices had been modifications of equipment originally intended for use with kerosene and lubricants. Shown here is a 1910 Gilbert & Barker Model T-1 non-measuring pump. Courtesy of Gilbarco, Inc.

1912

Curbside Filling Station

Numerous marketers claim to have opened the first off-street, built-for-the purpose filling station in this era. However, many of these so-called “first” stations were extensions or adaptations of oil companies’sales or bulk facilities. Earlier stations were often conversions of other types of buildings or simply curb pumps operated by local merchants. Shown here is an example of an early curbside filling station with a Tokheim pump. Courtesy of Tokheim.

1913

First Built-for-the-Purpose Service Station

As best as can be determined, the first specific, built-for-the-purpose filling station was opened in December 1913 in Pittsburgh, Pennsylvania, by Gulf Oil. It stood at the corner of Baum Boulevard and St. Clair Avenue, and the site remained a viable station for many years thereafter. Courtesy of PCM.

1916

First Visible Cylinder Attachment

Prior to this time, gasoline was sold from pumps using a measured stroke in which one revolution or stroke of the pump accurately measured a defined quantity. Jack Fleckenstein, a gasoline retail operator in Grand Rapids, Michigan, added a graduated glass cylinder to an existing curb pump, through which gasoline was measured and dispensed to insure honest measure for his customers. Pictured here is the Fleckenstein pump. Courtesy of June Fleckenstein.

1918

First Manufactured Visible Pump

The Wayne Model 276V was the first retail gasoline pump manufactured complete with a glass measuring cylinder.

1923

First Electric Motor Driven Pump

The first explosion-proof electric motor used to drive the pumping unit on a retail gasoline pump was introduced by Erie Meter Systems of Erie, Pennsylvania, for The Wayne Pump Company. Erie later manufactured its own retail dispensers, and survived as an independent manufacturer until purchased by A.O. Smith Industries in the late 1950s. The gas pump manufacturing division of A.O. Smith was eventually purchased by Wayne Division, Dresser Industries, the successors to The Wayne Pump Company.

1926

Clock face pump

The first retail gasoline pump that used both a mechanical meter device to measure fuel and a dial-type gauge integrated as one single unit was introduced by The Wayne Pump Company. Shown here

is an Erie two-product pump, circa 1928. The pump used mechanical meters to drive the clock-dial registers for the dispensing of two grades of motor fuel. Courtesy of PCM.

1933

Computing Pump

The first use of a reliable mechanism in a retail gasoline pump that could calculate both gallons and the total sale price was invented by The Wayne Pump Company. Wayne licensed the rights to manufacture the device to Veeder-Root Manufacturing, who at the time primarily manufactured mechanical counting devices for the textile industry. Courtesy of PCM.

1934

Veeder-Root Computer

Technology behind the Wayne computing device was licensed to Veeder-Root, and, in turn, offered to competing pump manufacturers. This device became the industry standard for the next 50 years. Model numbers such as “36”, “49” and “56” indicated the year of introduction as improvements were made. The introduction of the Model 101 eliminated this practice. The Wayne Model 60 computing pump was the first retail gasoline pump to use the now ubiquitous mechanical computer to record both the gallon and dollar amounts of each dispensing transaction. Courtesy of PCM.

1939

Remote Dispensers

Bowser Pump introduced a remote pumping system. It used a pump located above grade at the tank with piping to multiple dispensers at one or more pump islands. The pumping unit was enclosed in a chamber above grade. It was positioned immediately above the underground tanks which it served, and piped to multiple remote metering dispensers. This was the forerunner of today’s typical submerged turbine pump-pressurized fueling systems.

1939

Hose Reels

In this year, both Bowser and also Tokheim introduced gasoline pumps that included an internal hose reel and a device to retract the hose. Pic-tured here is the Bowser Reel Way. Courtesy of PCM.

1946

Low Profile Pumps

Following World War II, most manufacturers began offering retail gasoline pumps in which the dial face was at or about eye-level to the average motorist seated in his automobile. The lower profile pumps proved to be so popular with motorists that many of the earlier model pumps were cut down to give a new appearance. Pictured here is the Tokheim Model 39 low-profile pump. Courtesy of PCM.

1947

Self-service Stations

On the West Coast, the service stations operated by George Urich were converted to a self-service operation with customers pumping their own gas, then reporting to a central cashier for payment. This was quickly followed by the introduction of an identical arrangement in the East that was operated by the Tankar Stations of Norfolk, Virginia. Self-service flourished in some markets for several years before fading away from mainstream gasoline marketing, only to be resurrected again in 1968.

1953

Two Product Twin Pumps

Wayne introduced its Model 500 series, which included the first practical, all-in-one-cabinet retail gasoline pump that dispensed two different grades of gasoline. Prior to this time, dual pumps had been constructed by assembling two complete pump cabinets together to form one oversized unit. Shown here is a rare example of the Model 500 twin. Courtesy of PCM.

1954

Panorama Face Pumps

Various manufacturers began offering retail gasoline pumps that featured an enlarged dial face, often enclosed under a full-width curved glass dial face. Again, many existing pumps were modified for an updated appearance, giving them the benefit of the then-current style without the expense of replacing the entire unit. This Wayne Model 420 pump is an excellent example of the “panarama” style gas pump that typified this era. Courtesy of PCM.

1955

Coin-Operated Pumps

Although there had been several experimental attempts at coin-operated gasoline pumps in the 1920s and 1930s, an entrepreneur in Colorado created the first practical version in 1955. Together with his partners, he opened a chain of self-service retail stations which eventually evolved into today’s Gasamat operation.

1956

Modern Submerged Pumps

The year 1956 saw the introduction of the first successful electrically powered pumping units; they were designed to be installed inside underground tanks submerged in gasoline. Credit for this goes to both Franklin Electric and Marley Pump. Submerged turbine pump systems serve as the industry standard today. Courtesy of Red Jacket/Marley Pump.

1956

Blending Pumps

Innovative manufacturer Wayne Pump Company, working in conjunction with Sun Oil Company, perfected the first mechanical gasoline blending pumps, capable of dispensing multiple grades of gasoline mixed in various ratios. Known as “Custom Blenders,” the pumps were introduced experimentally in selected markets. By 1959, the system had been perfected and Sun Oil installed blending units at virtually every retail station under its brand. Other marketers—the Signal Oil & Gas brands, Murphy Oil (Spur), Skelly, Conoco, El Paso Natural Gas, Lion Oil, Derby Oil, and even Sears & Roebuck— would experiment with multiple grade marketing. In addition to blending the fuels, the mechanical computing registers had to be modified to accommodate various pricing levels corresponding with up to nine grades of fuel. Today, the blending of two grades of gasoline in fixed or variable proportions is becoming the industry standard.

1959

Gasoline Oriented Convenience Stores

Minneapolis-based Erickson Oil Products began converting several of their retail stations to convenience stores. The new locations, branded Holiday, operated under the Slogan “America’s Most Unusual Service Stations.” Indeed, for several years they certainly were among the most unusual. Other early participants include the Erickson-Holiday sibling, SuperAmerica, and California-based Beacon Oil. As history has proven out, today a substantial part of the total number of gasoline retail locations in this country include convenience stores. Courtesy of Walt Wimer, PCM.

1963

Dollar Bill Acceptors

The first practical invention of dollar bill acceptor control devices for gas pumps was introduced by Tokheim. Their “Mad Mac” accepted quarters, half-dollars and dollar bills. Legal in only a few select areas, these units are the forerunners of today’s reliable and efficient card-lock unattended fueling operations. They were commonly referred to as “one-armed bandits” due to their often unreliable nature. Pictured is the Tokheim 1150 ATS-DFD Dollar Fuel Dispenser that accepted only $1 bills. Courtesy of Tokheim Corporation.

1968

Current Self-service Era Begins

Beginning in 1968, innovative discounters reintroduced independent-brand attended, self-service operations. This was done in markets where fire codes allowed such operations. Within a year or two, many major brand dealers were operating split-island stations, with one full-serve and one self-serve island.

1969

Mechanical Remote Readouts

In 1969 the first reliable remote readouts, mechanically operated, were introduced. Following this introduction, cashiers were relieved of having to read the actual pump dial faces to determine the amount of each sale. As a result, self-service operations expanded greatly, as did gasoline and convenience store tie-in operations.

1970

Clean Water Act

One of the first environmental regulatory efforts regarding retail service stations was the Clean Water Act, which established guidelines for location of service stations adjacent to fresh water sources and other waterways. This was the first federal regulation directly related to petroleum marketing.

1971

Electronic Digital Display

An experimental Sinclair (subsequently Arco) station in Chicago saw the first use of gasoline dispensers using electronically controlled digital gallon and dollar readouts at the pump island. This innovation gave operators the ability to control dispensing of fuel using an electronic POS device with mechanical dispenser computers. A portion of the effort involved in this experimental installation led to the formation of Suntronics.

1970

Low Lead Fuels

Automobiles manufactured for the 1971 model year were designed to be operated on fuels of lower lead content than in years past, in an effort to lower emissions. Oil companies began offering at least one grade of gasoline with lower lead content specifically for these cars. By the 1975 model year, all production automobiles would require unleaded gasolines; and at that time most marketers eliminated their “low-lead” product, replacing it with an unleaded gasoline. At retail locations where the cost of a third product could not be justified, one grade of leaded gasoline was phased out to allow the storage and dispensing of unleaded fuels. Eventually leaded fuels would be eliminated (except in select markets), as multiple grades of unleaded fuels would be offered.

1971

Vapor Recovery Development Begins

Due to serious smog problems, various equipment firms and oil companies operating in southern California begin experimentation with equipment designed to capture vapors when (1) gasoline is transferred from storage tanks at the terminals; (2) between trucks and the underground tanks; and (3) between the underground tanks to a motor vehicle.

1974

Regular Production Dispensers

With Electronic Digital Display Units Tokheim introduced the first practical electronic retail fuel dispenser. This solved several problems which plagued mechanical computers, including limited pricing capacity and physical problems as higher prices caused dispensers to operate at higher

speeds. Electronic dispensers quickly became the industry standard.

1982

Multi-Product Dispenser

In an adaptation of earlier single and dual electronic dispensers, Gilbarco introduced the first practical multiple product gasoline dispenser. Three fueling positions— regular leaded, regular unleaded and premium unleaded grades—quickly became a common configuration. As lead additives were phased out, leaded regular was later replaced by a middle grade unleaded product. Pictured is the Gilbarco MPD-2 dispenser. Courtesy of Gilbarco, Inc.

1985

In-Pump Card Readers

In 1985, Wayne Division, Dresser Industries teamed with Shell Oil. They developed the first experimental multi-product dispenser which incorporated a credit card reader and communication capability for authorization in one unit. Using telephone communications and dial-up networking for authorization, these first experimental models encouraged other manufacturers to create similar units. This competition led to a later production model offered by Gilbarco in 1990 for select Exxon sites. These units quickly proved popular with the motoring public, greatly increasing the speed with which a refueling transaction could take place as well as allowing a customer to never need to leave the island for completion of the sale. Today, most in-pump card reader authorization is done with satellite network communications, and this feature is rapidly becoming the industry standard.

1987

December 22, 1987

On this day significant federal law was enacted. Beginning one year later and continuing until December 22, 1998, owners of underground tanks would be responsible for modifications to their tanks to prevent groundwater contamination from leaking tanks or spilling. Requirements included corrosion protection, spill and overfill prevention, and inventory control measures. Would the next ten years see the replacement or upgrading of every fueling system in the United States?

1990

In-Pump Video Displays

Canada’s Husky Oil began experimentation with multi-product dispensers in which a small video screen was installed. Commercial messages about company products and in-store features were played on videotapes to a somewhat “captive” audience while fueling.

1994

Radio Frequency Identification Pump Control

Mobil and Shell began experimentation with radio frequency identification (RFID) devices to identify a customer, activate a dispenser and authorize fueling. This eliminates the need for equipment capable of reading and authorizing credit cards and speeds the fueling process greatly. Industry leaders in this

development include Texas Instruments and Micron Communications.

1997

Robotic Fueling

Shell announced ongoing experimentation with fully automated robotic fueling systems, utilizing radio frequency identification and standardization of fueling system components. Much of the experimental equipment that is in use today can be found in Europe, but major U.S. equipment manufacturers have several systems under development. Watch the pages of Petroleum Equipment and Technology for all of the latest information as this exciting development is refined and eventually made available.

Wayne Henderson is the author of 10 books on various aspects of petroleum marketing history and one of the founders of Petroleum Collectibles Monthly.