
Chapter 4

Institutions, Science, and Technology

From 1934 to 1959, the Peninsula's broiler industry experienced a remarkable transformation. In only twenty-five years the role, nature, and interrelationships of feed companies, hatcheries, and broiler-growing operations were altered almost beyond recognition. Moreover, back in 1934 there were no processing plants (dressing plants) on the Peninsula; by 1959 there were at least sixteen, and they processed more than 90 percent of the broilers raised on Delmarva.

The Peninsula's landscape also experienced significant change during those twenty-five years with fields of corn and, to a lesser degree, soybeans increasingly replacing truck crops, hay, and pasture land. Horses and mules, which were significant consumers of corn and cornstalks, disappeared from most farms after tractors and trucks were introduced. The declining demand for corn to feed horses and mules was more than offset, however, by the constantly expanding needs of the broiler industry, which caused corn production on the Peninsula to double from 1934 to 1959. During those same years, the percentage of the Delmarva corn crop used for chicken feed increased more than six times, from 13 percent to 85 percent.

By 1959 the Peninsula's broilers were considerably larger, matured much faster, and were far more efficient in transforming feed into meat than were their 1934 counterparts. Moreover, the mortality rate for Delmarva broilers from birth to processing dropped from 13 percent to 6.5 percent over the same twenty-five years. Even more astonishing was the twenty-

fold increase in annual production from 9 million broilers in 1934 to 178 million in 1959. The Universities of Delaware and Maryland, and Virginia Tech, supported by federal, state, and county governments, played crucial roles in this extraordinary success story.

During the nineteenth century, farming methods across the nation were generally characterized as inefficient and wasteful. Although such nineteenth-century breakthroughs as the reaper and the steel plow made America the most productive agricultural society in history, the overwhelming majority of farmers ignored the newest discoveries in agricultural science. In 1862, the Morrill Act was passed by Congress and signed by President Lincoln. Its purpose was to provide land in the American West to be sold to produce money to support land-grant colleges that, in turn, would provide a practical education for America's farmers. The land-grant colleges, which included the Universities of Delaware and Maryland, and Virginia Tech, subsequently devoted a very significant amount of their instructional and research resources to agriculture.

By 1913 research at land-grant institutions had considerably expanded the frontiers of agricultural knowledge, but few farmers were paying attention. That year David Houston, U.S. secretary of agriculture, pointed out that only one-eighth of the land in the nation was being farmed with reasonable efficiency. The problem was that traditional methods of college teaching—which included lectures and the distribution of printed material on campus sites—

weren't reaching the vast majority of America's farmers. The next year, 1914, Congress addressed the problem by passing the Smith-Lever Act, which provided federal funds, to be matched by states and counties, to hire county extension agents who were to be housed in the land-grant colleges. The role of county extension agents was to literally "extend" the educational hinterlands of the land-grant colleges and universities into the fields, barns, and homes of individual farmers through on-site instruction, demonstration, suggestion, and the distribution of informational reading materials.

Starting with 1914, the county extension agent became a much-needed conduit to Peninsula farmers for the results of research carried on by the Universities of Delaware and Maryland, Virginia Tech, and other land-grant institutions. By 1925 the University of Delaware was also supplying a full-time poultry specialist for the Delaware part of the Peninsula, although a University of Maryland counterpart, based on the Eastern Shore, wouldn't appear until many years later.

But it wasn't easy sledding on Delmarva for county extension agents and university poultry specialists. The attachment to traditional patterns of agriculture was deeply ingrained and hard to shake. As late as the early 1930s, it wasn't uncommon to encounter Peninsula farmers who refused to apply chemical fertilizers to their worn-out fields. Even more exasperating was the still uncertain state of poultry science, which led University of Delaware extension poultry specialist Hoke Palmer to strongly suggest, in 1935, that "many of the theories and 'facts' that have been projected and accepted, need to be questioned, tested, and thrown out."

Over the years, however, the Universities of Delaware and Maryland, and Virginia Tech, along with other land-grant colleges, have played a vital role in the success of the Peninsula's broiler growers, feed dealers, and hatchery men by pushing back the frontiers of poultry science and providing trained person-



Dr. Gerald Combs of the University of Maryland developed effective formulas for chicken feed in the 1950s and early 1960s.

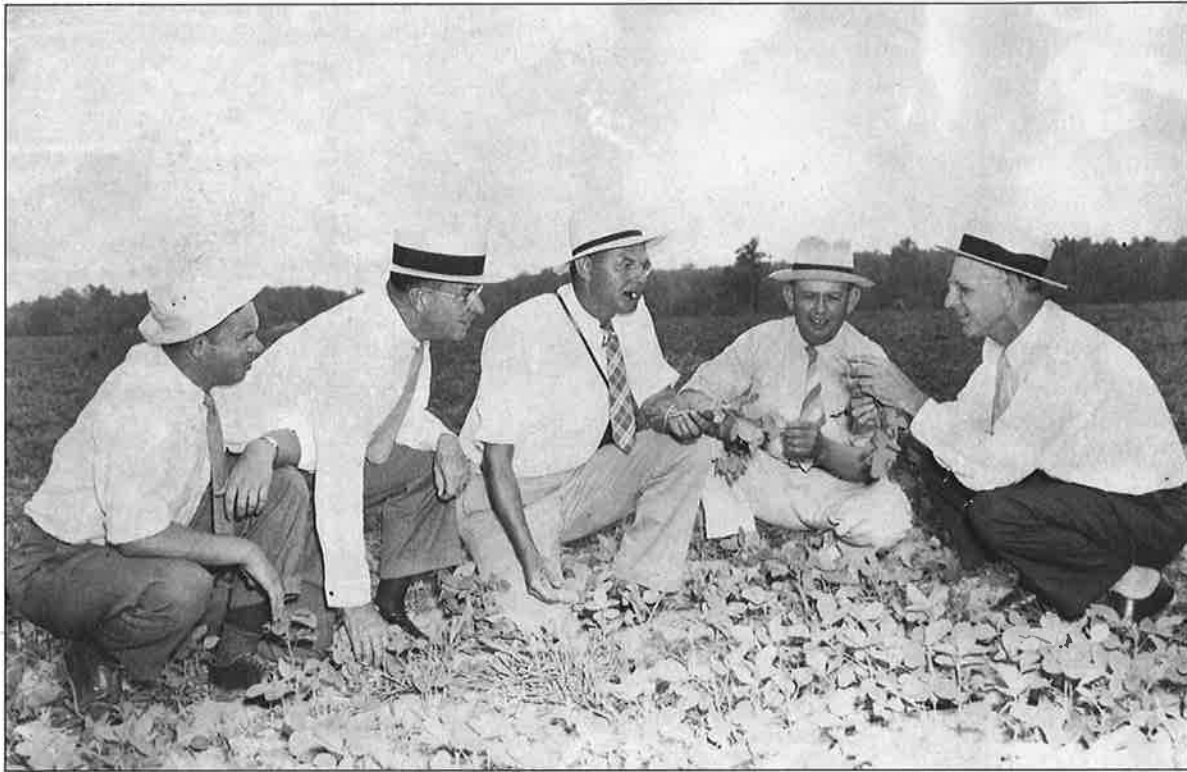


J. Frank Gordy as he looked in later life.

nel to demonstrate and disseminate the latest information relevant to chickens. University of Maryland County Extension Agent Clarence Keller, for example, was "a positive force" in the development of broiler-raising in Somerset County during the 1930s, while Dr. Gerald Combs of the University of Maryland, College Park, who also spent considerable time at the University's broiler substation just west of Salisbury, developed chicken feed combinations and formulas during the 1950s and early 1960s that helped make it possible for local feed mills to compete with the huge regional and national feed companies.

Exercising more influence than any employee of the land-grant universities was J. Frank Gordy (known to everyone as simply Frank Gordy) of the University of Delaware. A native of Laurel, Delaware, Gordy received a B.S. in agriculture from the University of Delaware in 1928. After teaching vocational agriculture in Delaware high schools for thirteen years, Gordy became assistant Sussex County extension agent in 1941, was named Delaware extension poultry specialist in 1943, and served as director of the University of Delaware Substation from 1955 to 1971.

In 1941 the Delaware General Assembly voted to establish an annex to the Newark-based University of Delaware's Agriculture Experiment Station and



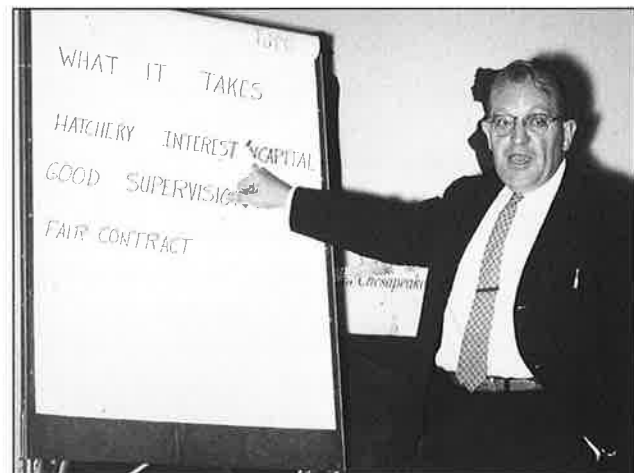
In 1941, Delaware Governor Walter W. Bacon appointed a commission of three members to recommend a site for the University of Delaware Substation in Sussex County. The commission chose a 310-acre farm southwest of Georgetown. At the site from left to right are Preston Townsend, Governor Walter W. Bacon, Kenneth I. Kadow, Harley Hastings, and the University of Delaware's Dean of the College of Agriculture, George L. Schuster. Townsend, Kadow, and Hastings were commission members.

directed that the annex be located in "lower Delaware."

That year a 310-acre Sussex farm, located a few miles southwest of Georgetown, was purchased at auction and became the annex or, as it was subsequently called, the University Substation. (In 1986 the University's Board of Trustees voted to rename it the University of Delaware Research and Education Center.) The substation provided a physical base for the efforts of Gordy and his staff to expand and make more competitive the Peninsula's broiler industry.

By the 1950s Gordy not only believed that increasing the size of broiler operations led to greater efficiency, he also recognized that quality control and aggressive and imaginative marketing were essential to recapturing and expanding some of the urban markets lost during World War II. In planning strat-

egy for recapturing the lost city markets, Gordy increasingly depended on the research and advice of University of Delaware colleague Willard T. McAllister, who produced detailed reports, beginning with 1948, that examined America's northeastern urban poultry markets in a very analytical fashion.



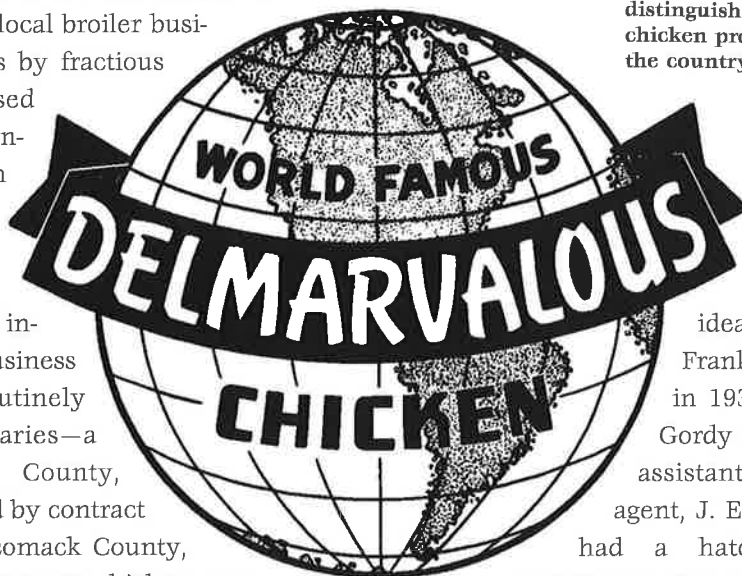
Willard T. McAllister speaking to representatives of Delmarva's broiler industry.

But most of all, Gordy succeeded because he understood that in the local broiler business, marked as it was by fractious feuds and hard-nosed competitive practices, industry-wide cooperation by all involved parties was paramount to future success. Because the local broiler industry operated with business relationships that routinely crossed state boundaries—a grower in Worcester County, Maryland, might be tied by contract to a feed dealer in Accomack County, Virginia, who sends the mature chickens to a

processor in Sussex County, Delaware—Gordy understood that local, industry-wide cooperation must be organized to include the entire Delmarva Peninsula and not just the state of Delaware.

Because of his many insights concerning the broiler industry, Gordy supported vertical integration, mandatory inspection of processed broilers, the use of the label "Delmarvalous" for chicken produced on the Peninsula, the formation of the Selbyville broiler auction, and the organization of Delmarva Poultry Industry, Inc. (DPI), which was a new trade association for all segments of the Peninsula's broiler industry.

To reach his goals, Gordy brought together different sectors of the broiler industry to form committees with, as historian Roger Horowitz points out, "a distinct set of objectives." Gordy was usually secretary of each committee to make sure it functioned. But bringing together competitors to work on common problems was not easy. According to Frank Perdue: "There would sometimes be a room full of entrepreneurs yelling and screaming at each other, but Frank [Gordy] was a great moderator and pacifier." His success at bringing together and then developing a spirit of cooperation among such contentious people caused Robert Street of Cohn and Bock in Princess Anne to simply state that Frank Gordy was "a godsend to the broiler industry on the Peninsula."



"Delmarvalous" label used to distinguish Peninsula chicken from chicken produced in other areas of the country.

Convincing various segments of the local broiler industry to be more cooperative wasn't, of course, an idea that originated with Frank Gordy. One evening in 1938, three years before Gordy returned to Sussex as assistant county extension agent, J. Edward McIlvaine, who had a hatchery southeast of Georgetown, met with a number of other

Sussex poultry men in a farm kitchen near Lewes. The discussion initially focused on improving the quality of hatching eggs, but then shifted to the need for Delaware poultry men to form an organization. For years county extension agents and extension specialists had encouraged that step.

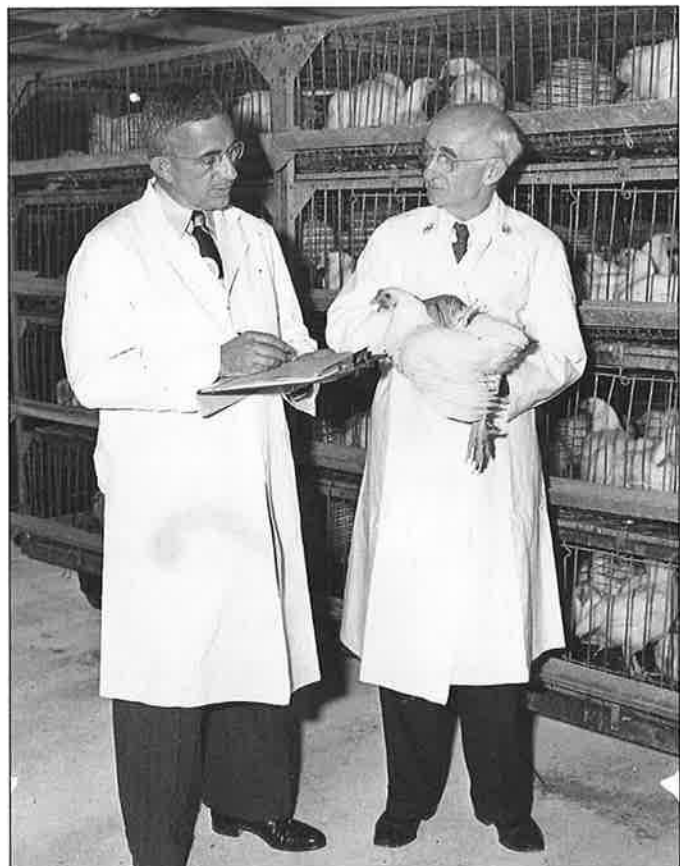
The evening's discussion led to the founding of the Delaware Poultry Improvement Association (DPIA), an organization devoted to upgrading layers and turkeys as well as broilers. According to former substation director George Chaloupka, Delaware led the other areas of the Peninsula in organizing the poultry industry because in the late 1930s broilers were more concentrated in Sussex than elsewhere on Delmarva. During the 1950s Frank Gordy was secretary of DPIA, and he used his influence to gradually transfer many of its functions to the newly organized Peninsula-wide Delmarva Poultry Industry, Inc. (DPI).

Unlike the Delaware Poultry Improvement Association, DPI owes its founding, in part at least, to events that occurred beyond the Peninsula. In November 1944 Howard C. Pierce, national poultry director for A & P Food Stores—then the nation's leading retail poultry distributor—stated, during a speech at a Canadian poultry meeting, that the development of a meatier, broad-breasted chicken would have a very significant impact on the broiler industry.



Ed McIlvaine, hatchery owner near Georgetown and subsequently a long time Townsends' employee, with an example of the white-feathered birds that became popular by the 1950s.

Howard Pierce (right) of the A & P Company, an originator of the first National Chicken of Tomorrow Contest, checks competing birds just prior to their being processed in 1948.





Professor A.E. Tomhave, University of Delaware poultry specialist and Delaware Chairman of the first National Chicken of Tomorrow Contest (with clipboard) and Howard Pierce, to the right of Tomhave, carefully keep track of accurate weights of contest birds being loaded for processing.

Pierce's words were picked up by the media, and people across America spoke enthusiastically about the need for a meatier broiler. With the support of A & P, the U.S. Department of Agriculture, and the poultry industry nationwide, the National Chicken of Tomorrow Committee was formed and drew up a three-year program to promote the development, through scientific breeding, of a meatier, broader-breasted chicken. In 1946 and 1947, state and regional contests held across the nation awarded cash prizes and established eligibility for the national finals, to be held in Georgetown, Delaware, in 1948.

In the spring of 1948, the forty breeders and hatchery men who were eligible for the national contest sent eggs to the Bradley Hatchery in Easton, which produced some sixteen thousand broiler chicks. The birds were then brought to the University of Delaware Substation where the broilers were fed and raised under identical conditions until they were twelve weeks and two days old. Then they were sent to processing plants and their "New York-dressed" carcasses were examined by a panel of judges and the winners declared.

Prior to the national contest Frank Gordy sensed that a festival that would "entertain the representatives of the different breeder companies" and also begin to develop a sense of community among the Peninsula's poultry men would be an appropriate way to mark the occasion. A Peninsula-wide festival committee was set up that produced a program including a beauty pageant in Easton on June 23, 1948, and exhibits, ceremonies, and a parade in Georgetown on the next day. A few days before the beauty pageant, the festival committee members became

incorporated and elected Dave Greene, a broiler grower and feed dealer from Kent County, Delaware, as president; Vic Keene of Chincoteague, Virginia, George Clendaniel of Denton, Maryland, and Howard Abbott of Georgetown, Delaware, as vice presidents; Warren C. Newton of Bridgeville, Delaware, as treasurer; and, of course, Frank Gordy as secretary.

At 7:30 p.m. on June 24, the three-mile-long festival parade was winding its way around the Georgetown Circle, heading for the local high school athletic field, where a fireworks display was sched-

Delmarva Chicken Festival

As part of early Delmarva Chicken Festivals, poultry royalty were selected to promote the industry. Nancy Magee of Berlin, Maryland, was the first Miss Delmarva in 1948. The last Miss Delmarva was selected in 1983.



Delmarva Chicken Festival Miss Delmarva contests attracted large crowds, such as the 1954 Georgetown, Delaware, competition won by Barbara Ann Eschenberg of Berlin, Maryland.

1954



1948



1948

Promoting the first chicken festival on Delmarva in 1948.



Dave Greene, broiler grower and feed dealer from Kent County, Delaware, was elected first president of the Delmarva Chicken Festival board of directors in 1948.

uled to end the day, when a sudden downpour sent the fifteen to twenty thousand spectators scurrying home. The rain continued for several hours, causing the cancellation of the fireworks. Well after midnight a weary Bill Henderson, Harold Purnell, and Frank Gordy, having just finished some final chores concerning the Chicken Festival, were standing on the Circle reflecting on the day's events. At that point the fireworks technician pulled up in his truck, complaining that he had been looking for Gordy for two hours, and demanded the thousand dollars that was due him. Gordy thought for a moment and then asked if the fireworks were still in the truck. Receiving an affirmative response, Gordy pointed in the direction of an open field some two blocks from the Circle and said that he wanted to see what the one thousand dollars would buy. The startled technician drove his truck to the field and set up his rockets. At 1:30 a.m. Sunday morning, in the heart of Georgetown, lights went on and bleary-eyed residents thrust their heads out of bedroom win-

dows to see what the explosions and extraordinary lighting effects were all about. Even more surreal was the sight of the three solitary figures, etched below in the flickering light of the fireworks display, calmly watching the last spectacular act of Delmarva's first Chicken Festival.

Even before the early morning fireworks in Georgetown, Dave Greene and other industry leaders began to talk enthusiastically about the publicity value of the festival and the need to make it an annual event. While the Chicken of Tomorrow Contest would no longer be part of the package, there were plenty of other activities that would attract considerable public attention. In 1949 the Delmarva Chicken Festival was held in Salisbury, and the National Chicken Cooking Contest was added to the program.

The cooking contestants were from only three states, but the event's potential for promoting chicken was obvious to festival organizers. Best of all, food columnists from a number of newspapers and magazines such as the *New York Times*, *Ladies Home Journal*, *Woman's Day*, and *Good Housekeeping* were present. Clementine Paddleford, food editor for the *New York Herald Tribune*, not only wrote in great detail about the cooking contest, but she became so interested in Delmarva's broiler industry that she set out on a tour "to see the life story of the broiler from egg to packing house...in the largest chicken-growing area of the world."

As predicted, the National Chicken Cooking Contest was soon drawing contestants from a very broad geographic area that, by 1967, included all fifty states. Indeed, the national contest had become so big that in 1971 its future was turned over to the National Broiler Council. The following year, for the first time, the national cooking contest was held outside the Peninsula, in Birmingham, Alabama. Although a local contest would continue as part of the Delmarva Chicken Festival, the National Chicken Cooking Contest returned to Delmarva only once in subsequent years.

The third Delmarva Chicken Festival, held in Dover in 1950, was marked by the appearance of the "largest known fry pan in the world," produced by Mumford Sheet Metal Works in Selbyville, Delaware,



A group of New York food editors shares ideas on promoting the 1961 National Chicken Cooking Contest. The contest was held during the 14th Delmarva Chicken Festival in Seaford, Delaware.

"to help publicize chicken of this area." The giant pan had a diameter of ten feet, was eight inches deep, and weighed 650 pounds. Gas-fired, the pan was mounted on a concrete block base, and eventually a metal or canvas canopy was put in place to protect it from rain. By 1965 it had fried up 190,000 pieces of chicken or about 90 to 100 tons.

In June 1998 in Millsboro, Delaware, the fiftieth annual Delmarva Chicken Festival was held. Even more significant was the fact that the Millsboro event also marked the golden anniversary of Delmarva Poultry Industry, Inc. (DPI). The small group of Delmarva poultry leaders who planned the first festival in 1948 never envisioned that their committee would eventually go beyond sponsoring "some

type of activity—something of a promotional nature," and evolve into an organization that by 1971 had approximately four thousand dues-paying members and an annual budget of \$173,000.

From 1948 to 1954, the focus of the festival committee's directors continued to be just the Delmarva Chicken Festival, with most of the necessary planning taking place in the winter and spring. In the summer of 1955, however, the directors changed the name of their organization to Delmarva Poultry Industry, Inc., and directed it to carry out a far more expanded program. An office with full-time employees was established in Selbyville. Initially, Frank Gordy was named executive secretary, but when he retired from the University of Delaware in 1971,



Barbara Marks of Wantagh, New York, was national cooking champion of 1959. Mrs. Marks with former U.S. Senator John G. Townsend to her right and two poultry inspectors at Townsends, Inc., Millsboro, Delaware.

Gordy's title at DPI was changed to executive director. He served as DPI's executive director until 1973 when he was succeeded by Ed Ralph (1974-86), Jerry Truitt (1987-93), and Bill Satterfield (1993-). In 1956, the DPI office was moved to the University of Delaware Substation.

DPI has carried out its mission to promote the interests of the Peninsula's broiler industry by engaging in a broad variety of activities that emphasize industry-wide cooperation. They include sponsoring the annual Delmarva Chicken Festival, supporting poultry research, lobbying state legislatures, publicizing Delmarva broilers, and disseminating the latest information concerning broiler production, processing, and marketing to its membership. In

short, DPI attempts to do for the industry what the individual companies and growers can't do on their own.

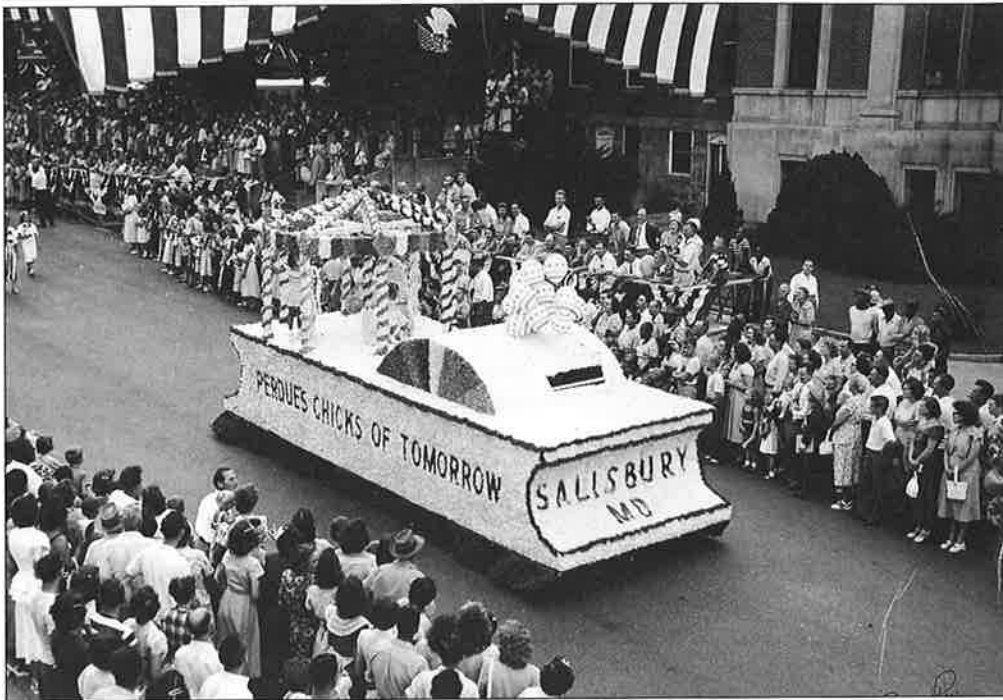
The need for closer cooperation also influenced the relationships that the University of Delaware and the University of Maryland established with the component parts of the broiler industry. Elsewhere in the United States, land-grant institutions were very careful to avoid overly close contact with local agribusinesses because the universities were concerned that they might be subject to the charge of favoritism. But the University of Delaware, under the leadership of George Worrilow, dean of the College of Agricultural Sciences, and the ubiquitous Frank Gordy recognized that the broiler industry



Giant fry pan, built by Mumford Sheet Metal Works of Selbyville, as it was being prepared for its first Delmarva Chicken Festival in 1950.

Though in the heart of Delmarva's broiler industry, Laurel, Delaware, has hosted the Delmarva Chicken Festival only once, in 1957. The festival is a promotional program of the Delmarva Poultry Industry, Inc. (DPI).





1951

A.W. Perdue and Son, Inc. provided this float in the 1951 Delmarva Chicken Festival parade in downtown Salisbury, Maryland. "Perdue's Chick of Tomorrow" theme tied in with the second National Chicken of Tomorrow Contest that same year.



1967

The annual Delmarva Chicken Festival has moved from town to town since its beginning in 1948. Some communities held parades, such as Dover in 1967.

Delmarva's Chicken Industry: 75 Years of Progress



Dr. John Hammond of O.A. Newton and Son, Company; Pres Workman, broiler grower near Georgetown; and Ray Lloyd, then University of Delaware assistant county extension agent, examining "New York dressed" chickens in the cold-storage room of a New York poultry handler in the mid-1950s.

Promoting Delmarvalous Chicken. Seated from left to right: Walt Carey, Ed Covell, Frank Gordy. Standing: Ralph Barwick, Jim Nicholson.





Bynum Wood, left, of A.W. Perdue and Son, Inc., Salisbury, and George Chaloupka, University of Delaware poultry research associate, discuss broiler research at the University's Substation in 1967.

was the linchpin of the state's rural economy and that its component parts deserved special treatment. This led the University of Delaware, according to former extension agent Bill Henderson, to rationalize an unusually tight relationship with local poultry agribusinesses.

By 1955, not only was the University Substation's director serving as executive secretary of the local broiler trade organization (DPI), the University's extension agents and poultry specialists were increasingly involved with the partially integrated companies to find better ways to disseminate the latest broiler information to growers. The most important contact persons for the extension agents had become the company servicemen rather than the

growers because company servicemen were in a stronger position than university personnel to persuade their contracted grow-out farmers to modernize their broiler-raising practices. In other areas of local agriculture, however, the University Substation's extension agents and specialists continued their earlier pattern of working directly with individual farmers. Because, statewide, the broiler was not as important to Maryland's rural economy, the University of Maryland was, initially at least, more tentative about establishing a special relationship with individual broiler companies.

In addition to working directly with individual companies, the two land-grant colleges worked cooperatively with each other to aid the broiler indus-



The University of Delaware Substation, near Georgetown, provided important poultry research data. Shown clockwise are Substation Poultry Research Advisory Committee members in the 1950s. Ralph Barwick, Ray Lloyd, Byard Carmean, Ed McIlvaine, Dr. John Hammond, Dr. Ernest Waller, and Frank Gordy.

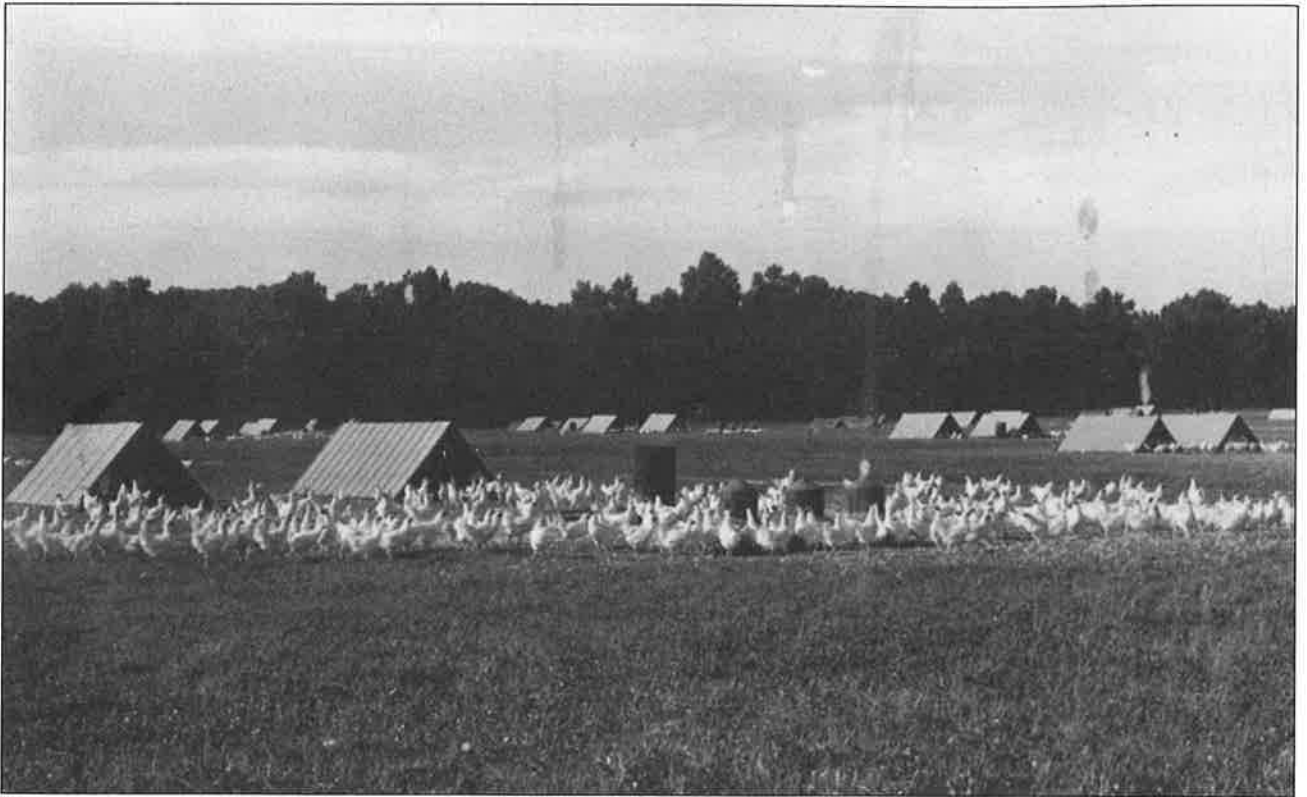
try. University of Delaware extension poultry specialist Ray Lloyd met monthly to plan joint ventures with Jim Nicholson, the University of Maryland extension poultry specialist on the Eastern Shore.

Although about 50 percent of the funding for extension agents came from the federal government, the broiler industry's suspicion and distrust of Washington, which dates back to World War II, continued into the late 1990s. It has caused local poultry entrepreneurs to play leading roles in keeping Washington from "meddling" in broiler production and marketing. Even when chicken prices were pressured downward by national overproduction, Delmarva held firm in its rejection of federal intervention. In 1961, for example, the U.S. Department of Agriculture initiated discussions on the need for a federal program that would cut back on the supply of chickens until it dropped to the level of consumer demand. A "Stabilization Advisory Committee for Broilers," including Easton poultry entrepreneur Ed

Covell, was appointed to discuss the issue and make recommendations.

Although there was considerable support for federally imposed production controls in the advisory committee from representatives of New England and parts of the South, Covell was successful in leading a faction that prevented the committee from issuing a favorable report concerning government action. In doing so, Covell not only reflected the Peninsula's traditional suspicion of Washington, he also reflected Delmarva's growing confidence that its broiler industry had learned some valuable lessons from the difficult years since World War II and was now equipped to weather the storm. As grower Pres Workman put it, "Delmarva was against controls because it felt that it was in a good competitive position." The continued opposition to federal involvement of almost any sort was expressed, in 1985, by DPI's executive director Ed Ralph when he praised the "better attitude in Washington" since President Reagan took office. Ralph maintained that

Delmarva's Chicken Industry: 75 Years of Progress



Delmarva's broiler breeders, the parent stock of many of the Peninsula's broiler chicks, were grown in range shelters on fields of pasture prior to being moved into laying houses.



Growers were taught proper methods of disease control, such as vaccinating for laryngotracheitis (LT).

the resulting cutback in federal regulations had "lessened the burden" on the Peninsula's broiler industry.

There was, however, one occasion when federal regulations were welcomed by DPI and by many industry leaders. Prior to 1955, Delmarva broilers were, according to poultry extension specialist Ray Lloyd, "inferior to those from Maine" and from some other areas of the United States. While the Selbyville auction pressured growers to produce a better bird, there was no institution that could pressure processors to meet higher standards. Frank Gordy and other industry leaders understood that the market for broilers would never reach its potential unless a uniformly high quality Delmarva chicken, guaranteed to be free of disease, could be placed in stores throughout the Northeast.

It was difficult and costly, however, to check "New York-dressed" chickens for disease because in processing the viscera were left untouched. With the gradual movement toward evisceration in the 1940s and 1950s, however, disease inspection was much easier, and a number of companies saw the marketing advantage of joining the voluntary inspection program provided by the U.S. Department of Agriculture. By 1958, approximately one-fourth of Delmarva's chickens were processed under voluntary federal inspection.

Pressure for nationwide mandatory inspection increased in the mid-1950s, when stories appeared in the national media charging the American poultry industry with processing diseased birds. Finally, in 1959 a compulsory federal poultry inspection law went into effect for broilers sold in interstate commerce. A pleased Frank Gordy reported that the immediate effect "was the almost complete disappearance of 'New York-dressed' chickens," and an increase in consumer confidence in broilers. In 1968, processed poultry sold intrastate was also brought under mandatory federal inspection.

The evolution, over time, of a larger, faster-maturing and more efficient meat-type chicken was a major factor in the success of the broiler industry on the Peninsula and elsewhere. A comparative look at the physical characteristics of birds brought to mar-

ket in the 1920s and 1990s is very revealing. In 1923 young chickens sold for eating were sixteen weeks old, averaged only 2.2 pounds, and had a feed conversion rate—pounds of feed necessary to produce one pound of live chicken—of just 4.7. By 1993, broilers were ready for processing after only 6.5 weeks, weighed in live at 4.4 pounds and had a feed conversion rate of 1.9.

Scientific breeding was a key factor in the dramatically improved performance of broilers. Although advances in breeding were made during the early years of the industry, it was the first National Chicken of Tomorrow Contest that culminated in the national finals held in Georgetown, Delaware, in 1948, that gave the most significant boost to the development of a superior bird. Vantress Hatchery of Marysville, California, was the winner with a Red California Cornish-New Hampshire cross. In response to the rising preference for white feathered chickens after World War II, Vantress also developed a white feathered male line that was crossed with a white feathered female line, developed by Arbor Acres Farm of Glastonbury, Connecticut. The latter cross dominated the broiler industry on the Peninsula and across the nation from the 1950s through the 1970s.

The control and reduction of disease was a second key development in the success of the Peninsula broiler industry. In 1923 almost 20 percent of the chickens died before being brought to market with disease being the major killer; by 1993 the mortality figure had dropped to only about 4 percent. Among the factors contributing to this dramatic drop in disease mortality was the shorter timespan for the chicken from birth to the processing plant, a healthier diet, and improved hygienic living conditions. But also very significant was the dramatic progress in avian medicine.

Stopping the spread of poultry diseases was particularly challenging on the Peninsula because in areas like Sussex County, the concentration of broiler flocks was, and still is, the highest in the world. Because of the increased threat of epidemics that this concentration of birds created, many hatcheries chose to locate on the periphery, in places such as



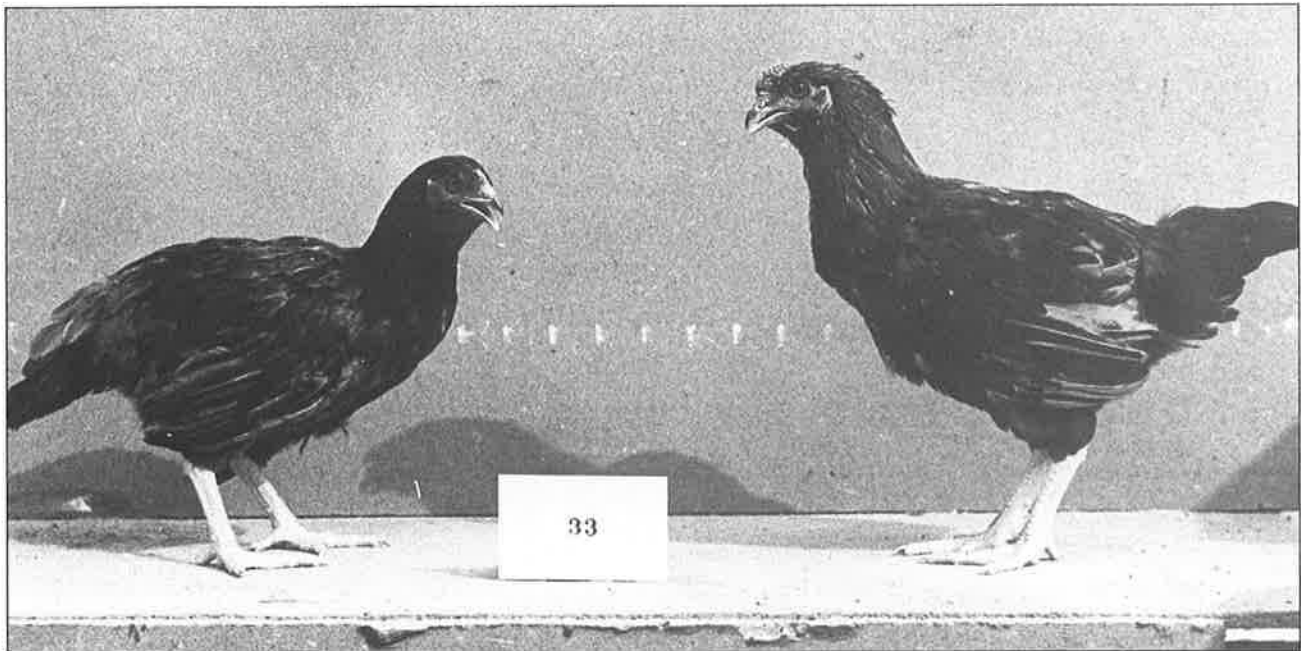
Connie Parvis, DPI home economist; Bette McNear, food and travel editor, *Wilmington News Journal*; and George Chaloupka, University of Delaware poultry research associate, in 1973 contrast the size of a Barred Rock Chicken, on left, with a White-Cross bird at three weeks. The former was fed a broiler diet of the 1930s and the latter a modern-day broiler diet.



The winner of the 1948 Chicken of Tomorrow Contest, Charles Vantress, (left) of Marysville, California, receives his winning check.



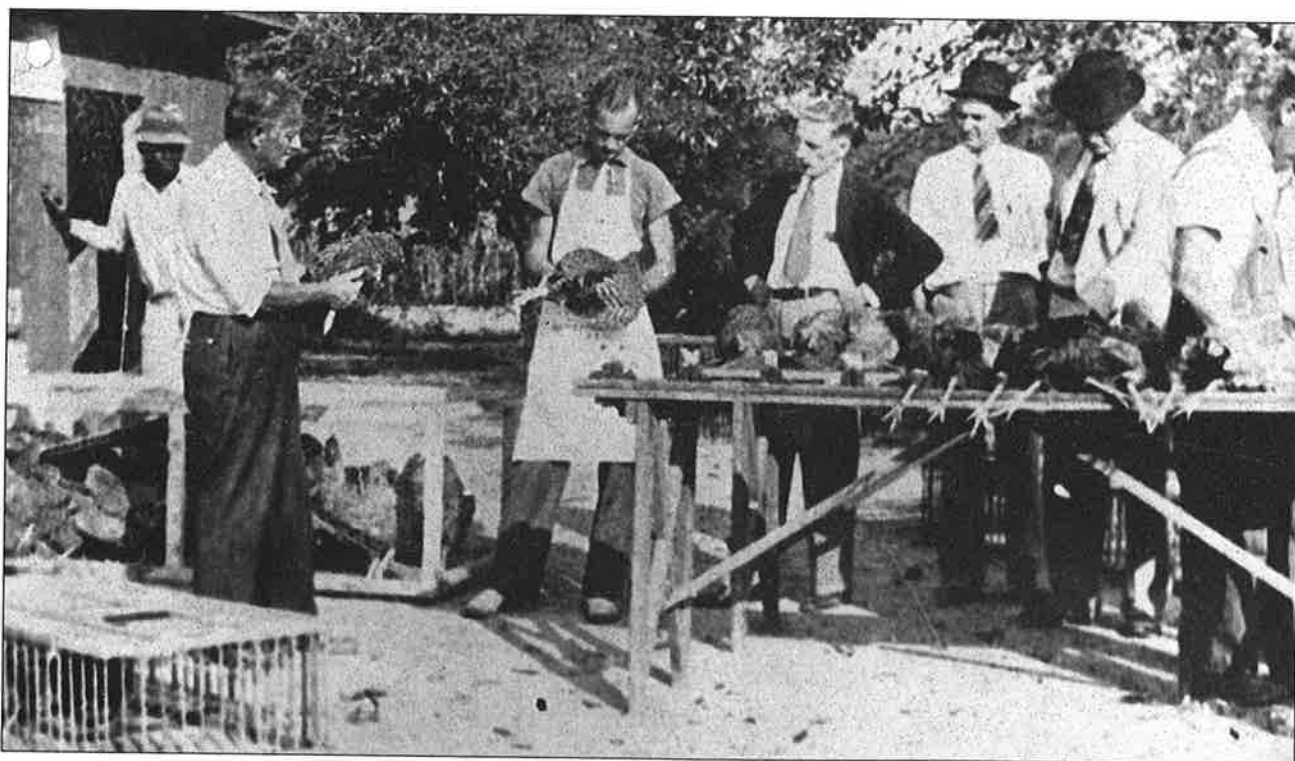
White-feathered birds became popular in the 1950s. Birds eat from hanging feeders and drink from water trough in center of chicken house.



The winning entry in the first Chicken of Tomorrow Contest in 1948. Black feathered birds were the norm at that time.



Before the days of spraying and water-applying vaccines in chicken houses, flocks were vaccinated individually for protection against Newcastle Disease and Infectious Bronchitis as shown in this 1940s photo.



Selecting for breeders and pullorum-testing at a Snow Hill, Maryland, farm during the 1940s.

Easton and Dover, rather than in the very heart of broiler country. Among the diseases that threatened the livelihood of Delmarva growers were leukosis, pullorum, coccidiosis, fowl pox, a variety of bronchial diseases, Newcastle disease, Gumboro disease, and fowl typhoid. Although avian influenza has never taken hold on the Peninsula, the possibility of its arrival has been a source of great concern.

During the 1920s and 1930s, attempts by veterinarians, extension agents, and other specialists to apply scientific methods to combat poultry diseases was joined by less scientific types who sold "snake oil" remedies to concerned growers. By World War II, however, almost all of the "snake oil" potions and

their salesmen had been discredited, and Peninsula growers turned increasingly to professionals in poultry health care to identify specific diseases and then to direct remedial action. Among the professionals who played very significant roles were veterinarians trained in avian pathology who worked for Delaware, Maryland, or for their respective state universities.

Although not a veterinarian, the activities of H. R. Baker of Delaware's Board of Agriculture—affectionately known as "Doc" Baker—foreshadowed the role of the avian veterinarians. Baker was an early innovator in the poultry disease diagnostic work that was crucial in the pullorum and fowl typhoid control



Poultry diseases such as pullorum and fowl typhoid caused concern prior to World War II. A leader in diagnostics was H.R. "Doc" Baker, seated on right, with the Delaware Board of Agriculture, shown in this 1941 photo.

Delmarva's Chicken Industry: 75 Years of Progress

programs begun on the Peninsula before World War II. In the 1960s and 1970s, Dr. Morris Cover brought together a team of University of Delaware scientists that included Dr. William Benton and Dr. William Krauss in Newark and Dr. Lester Greene of the University of Delaware Substation in Georgetown. Their work led to major breakthroughs in the diagnosis and control of leukosis, laryngotracheitis, coccidiosis, and other avian diseases. Very significant poultry research at the University of Delaware continues in the 1990s under the leadership of Dr. John K. Rosenberger. In 1997 avian research possibilities were further enhanced with the dedication of the Charles C. Allen Jr. Biotechnology Laboratory on the Newark campus.

The University of Maryland and Maryland's Department of Agriculture have also played major roles in the control of poultry diseases. Dr. I. M. "Pinky" Moulthrop, who served as pathologist at the University of Maryland Livestock Sanitary Service Laboratory three miles west of Salisbury from 1936 until the early 1970s, and Dr. Bob Johnson of the University of Maryland, College Park, did important research on respiratory bronchitis and Newcastle disease during the 1960s and 1970s. More recent University of Maryland scientists stationed in College Park who left their mark on the Delmarva poultry industry include Dr. Warren W. Marquardt, who did significant research on infectious bronchitis virus, Dr. David B. Snyder, who pioneered in the bio-



In the 1940s, state laboratory representatives went to farms to collect blood samples from each bird. Laboratory tests were then conducted to establish pullorum-free flocks.

technology of the Gumboro virus, and Dr. Edward T. Mallinson, who uncovered new facts concerning disease biosecurity.

In 1966, the universities of Delaware and Maryland, along with DPI, sponsored the first annual National Meeting on Poultry Condemnations, which was held in Salisbury, Maryland. Subsequently the focus of these meetings was widened to cover broiler processing as well as a wide range of poultry diseases. Annually in October more than five hundred poultry specialists from all over the world gather at the National Meeting on Poultry Health and Processing to discuss the most current scientific information that is useful to the broiler industry.

Privately owned avian laboratories, staffed by veterinarians, often supplemented the crucial work of state and university pathologists in examining sick and dead chickens and identifying the nature of the illnesses. But the main contribution of these private laboratories was in the development and production of vaccines that prevented the outbreak of a number of avian diseases. Dr. Hiram Lasher, a veterinarian

educated at Cornell University and briefly employed by the state of Delaware, founded the Peninsula's first significant private avian laboratory in Millsboro, Delaware, in 1950. By 1979, Dr. Lasher's Sterwin Laboratories was supplying 50 percent of all the chicken vaccines used in the United States. Today Sterwin is known as American Scientific Laboratories. A second Millsboro vaccine company started by Dr. Lasher is known today as Intervet.

While working for Dr. Lasher in Millsboro, Dr. Albert Cosgrove discovered a new disease that infected a flock of broilers raised in Gumboro, Delaware. Named for the tiny community where it was first sighted, Gumboro disease is particularly troublesome because it is found all over the world and affects the immune system of chickens. The significance of this disease has often caused foreign avian scientists who visit the Peninsula to insist on having their pictures taken in Gumboro.

A Peninsula leader in the distribution of vaccines was L & M Distributors, founded in 1954 by Donald Lynch and Elbridge Murray near Selbyville, Dela-



Fowl pox vaccination on the Thaddeus Warrington farm in Sussex County in the late 1940s.

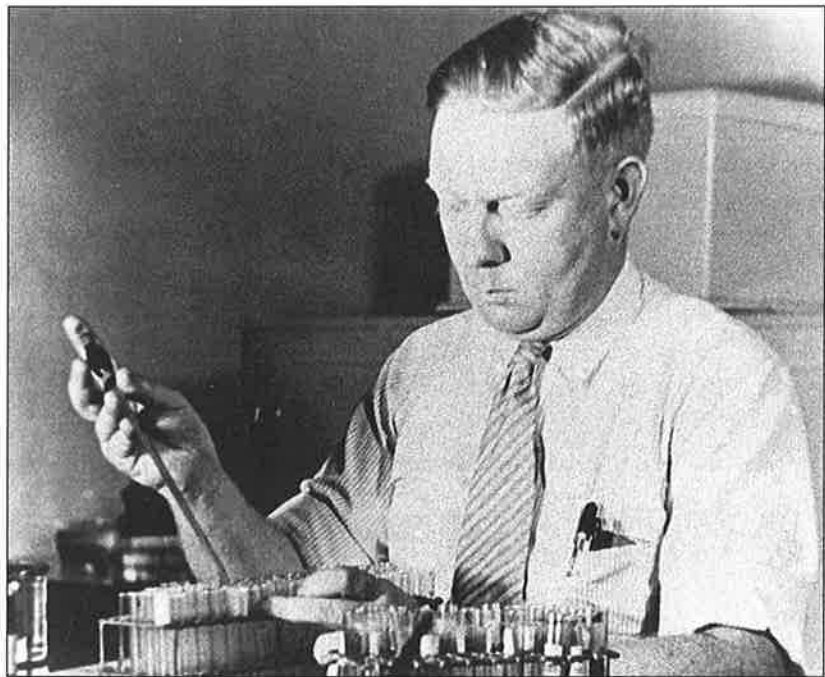


Some of the above medicines were part of the "snake oil" remedies used on broilers before World War II.



Dr. Morris Cover addressing a meeting of broiler industry people in 1958. Sitting behind Dr. Cover, from left to right, are Dr. Al Cosgrove, Dr. Ernest Waller, Dr. Hiram Lasher, and Carroll Long.

Dr. I.M. "Pinky" Moulthrop
who served as pathologist at
the University of Maryland
Livestock Sanitary Service
Laboratory just west
of Salisbury.



Drs. Boyd Stock, Al Cosgrove, and Hiram Lasher examining a dead chicken at Delaware Poultry Laboratories in Millsboro in 1957.

Delmarva's Chicken Industry: 75 Years of Progress

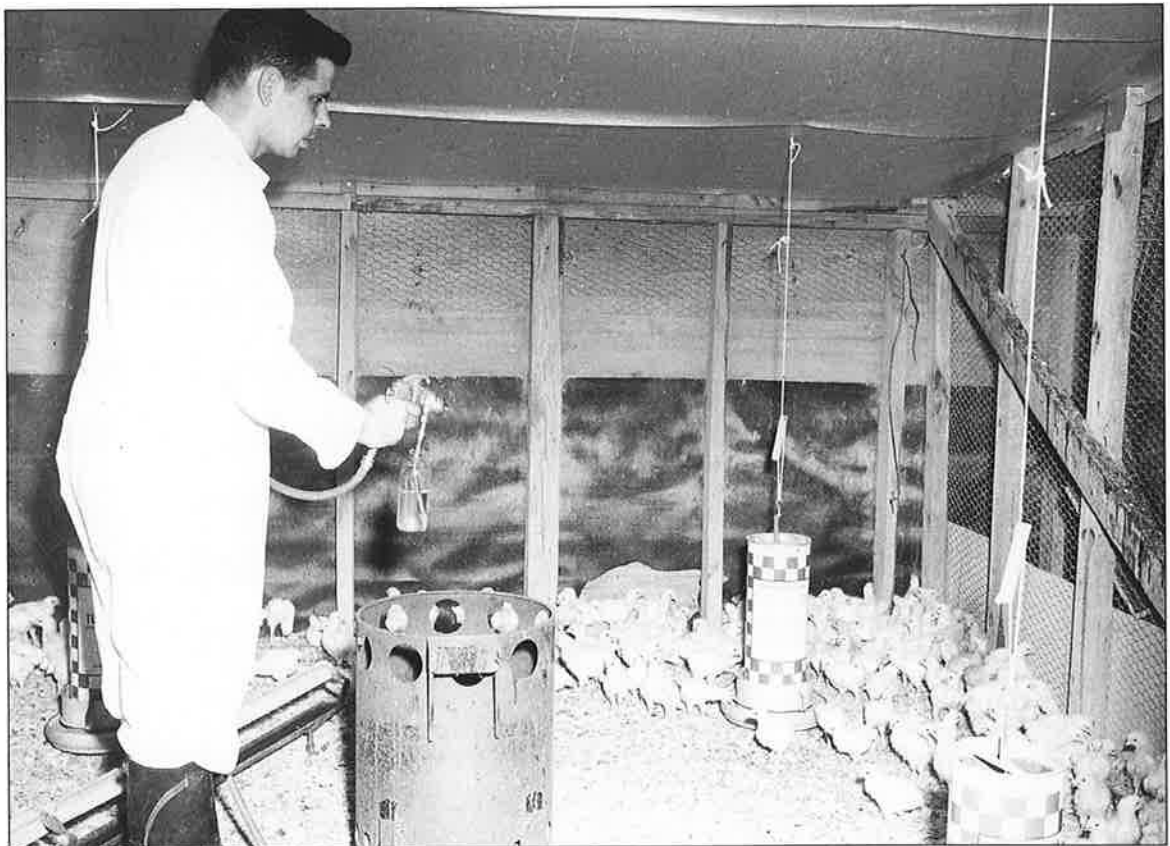
ware. In 1960 the company built L & M Laboratories in Berlin, Maryland, hired such capable poultry scientists as Dr. Stephen Hitchner, and began producing as well as distributing avian vaccines. In 1998, the company was known as Select-Merial. From rather modest local beginnings, all three Delmarva vaccine companies have become major players in the international vaccine market.

As the integrated poultry companies became larger, they hired more specialized personnel. By the 1990s, each of the five integrators operating on the Peninsula had at least one avian veterinarian on staff. An earlier example was Dr. Frank Craig, a former professor at North Carolina State University, who was well known for his research on some of the key diseases that historically posed a threat to Delmarva chickens. In the 1960s Dr. Craig joined Perdue Farms and subsequently played a major role in

the successful efforts to prevent the feared avian influenza from spreading to the Peninsula from neighboring areas.

Prior to 1960, most poultry health professionals were convinced that a thorough cleaning of chicken houses after each flock was essential to limiting the spread of avian diseases. A key to removing old litter was the availability of cheap and effective new litter. Traditionally wood shavings were preferred for chicken litter, and the numerous lumber mills that dotted the Peninsula supplied shavings at a very reasonable price. By 1960, however, the supply of timber on Delmarva had significantly declined, causing most of the lumber mills to shut down. With wood shavings more expensive and difficult to come by, some growers stopped cleaning out litter after one, two, or more flocks.

The results were surprising. Broilers in chicken



Dr. Al Cosgrove demonstrating how to spray-vaccinate broilers for prevention of respiratory diseases about 1960.

houses with used litter seemed to be about as disease-free as broilers in houses with new litter. By the 1990s growers were skimming off the crusted chicken manure after each flock, but not changing the basic litter for two or three years. By leaving the litter, growers discovered that they were exposing their very young chicks to certain avian diseases at a stage in their development when these diseases posed less of a health threat than if contracted later. In short, by allowing litter to remain on the chicken

house floors for five, ten, or even fifteen flocks, the birds were being biologically conditioned or "seasoned" to build up a natural resistance to some of the most troubling poultry microorganisms.

Thanks to modern poultry health care strategies and medicines, along with improved chicken nutrition, the impact of poultry diseases has declined appreciably since 1923, when Cecile Steele launched the Delmarva broiler industry. By the 1990s the Peninsula's chickens had never been healthier.

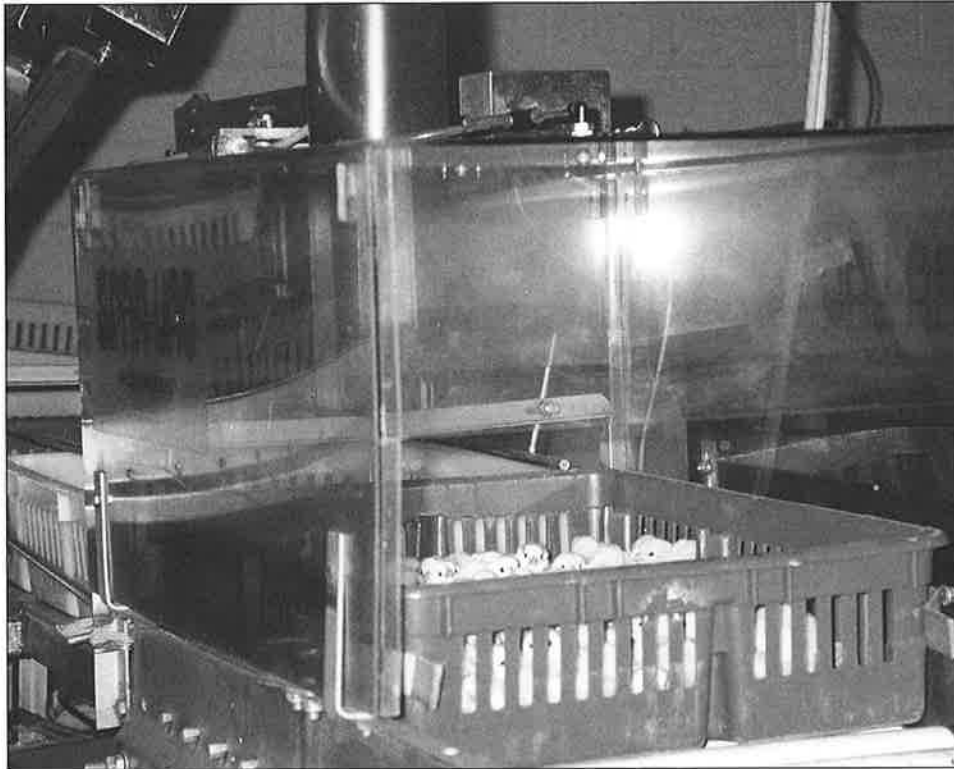
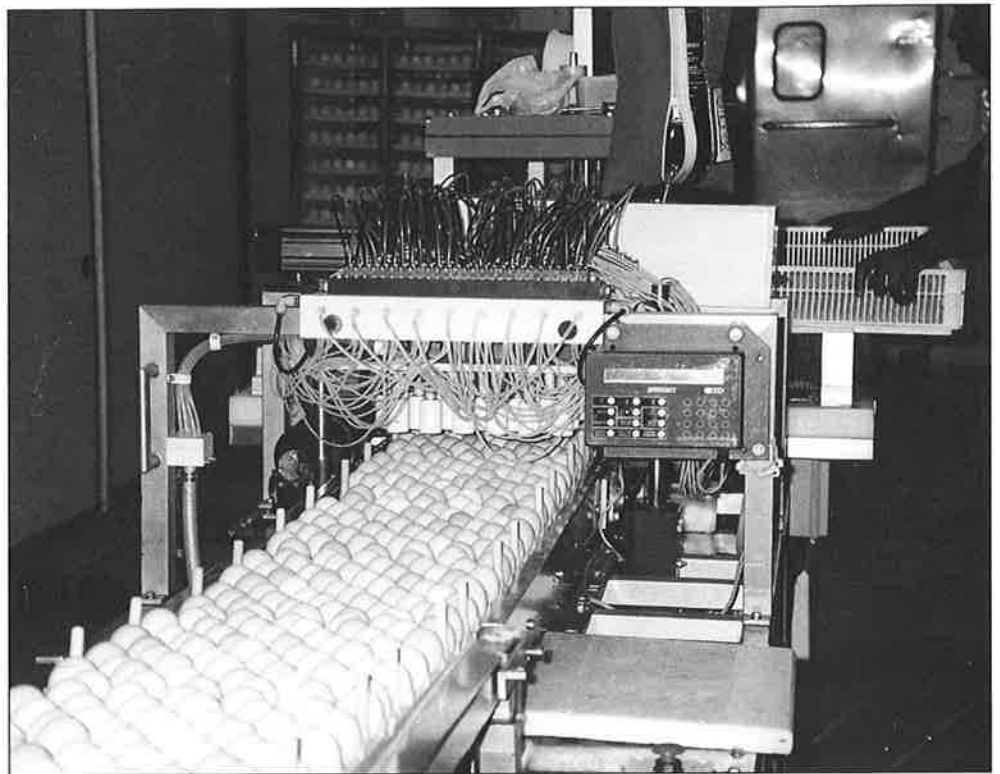


In the 1950s, '60s, and '70s, debeaking crews went from farm to farm to trim the chickens' beaks to prevent injuries from aggressive birds. Though called "debeaking", the beak was never removed. It was just trimmed back.

A real labor-saving innovation in hatcheries was the introduction of *in ovo* vaccination for protection against Marek's disease.

The vaccine is injected into the eggs a few days prior to hatching.

This 1990s technology helped reduce much of the repetitive work.



In the 1990s, spray vaccination of chicks in hatcheries provided a uniform distribution of vaccine while reducing handling of the day-old chicks.