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GEIGY'S FIRST 200 YEARS.

Last year, the international chemical firm of Geigy celebrated its 200th year in the dyestuff industry. For two full centuries, Geigy has been either a purveyor of raw materials used for making dyes, or the actual manufacturer of dyestuffs for the textile, paper and leather trades. Thus Geigy joins the very exclusive ranks of enterprises that have existed under the same name for two hundred years.

This year, Geigy reaches another important milestone — its 100th year as a manufacturer of synthetic dyestuffs. For it was just three years after the English scientist, William Henry Perkins synthesized the dye Mauveine, thereby launching a new era for the dyestuff industry, that Geigy scientists in Basle, the company's world headquarteds, successfully produced their own synthetic dyes.

Since that momentous occasion in 1856 when the 18-year-old Perkins converted his Easter vacation into a research period that earned him knighthood, some 30,000 synthetic dyes alone have been created. Hundreds of these were discovered by Geigy's research scientists. Geigy's second century of activity, in fact, was marked by a number of noteworthy achievements in dyestuff development, as well as in other chemical fields such as pharmaceuticals, industrial and agricultural chemicals — of which its greatest accomplishment was orginating DDT insecticides.

Fortunately, at the time that Perkins revolutionized the dyestuff industry with his synthetic Mauveine, Geigy, then with nearly a century of experience as a trader in dyewoods, exotic spices and medicinal herbs, and as a manufacturer of colouring powders, had just converted from a primitive grinding operation to an efficient steam pulverizing plant. Thus it was in an ideal position to embark immediately into the production of synthetic dyeing materials. *Johann Rudolph Geigy,* fourth generation descendant of the firm's namesake founder, was head of the firm at the time and visualized tremendous potentials in synthetic dyes.

Geigy financed the construction of a plant to produce the so-called aniline dyes for a former associate, *J. J. Muller.* Muller earned one of the highest awards of merit for his synthetic dyes at the London Exhibition. One of Muller's creations was known as " Vert Usebe ", a colour which became fashionable at the court of Empress Eugenie of France. Pleased with the results of Muller's work, Geigy absorbed the factory into its operations.

Geigy started building up a staff of chemists for a newly created research division, being well aware of the fact that the company's prestige depended greatly on their ability to create new colouring materials. His wisdom paid off hugely, for the first Geigy-created dyes were patented within a year or two after Muller joined forces with him. Geigy's fullfledged emergence as a significant factor in the dyestuffs field came in 1888, when a chemical genius, *Traugott Sandmeyer,* was engaged to head its research department. Self-effacing, hardworking, painstaking Sandmeyer and his staff created one superior dyestuff after another, the most important of which was the famous indigo, called the " king of dyes ".

Since then, Geigy has greatly increased its prestige in the dyestuff world. The company developed a line of neutral fastdrawing dyestuffs known as Irgalans, in the full range of the spectrum. These unique colouring agents, compared to others available, can be applied in much shorter periods of time from a neutral bath with a minimum of boiling, while still producing extremely level results and thorough penetration.

The Irgalans also compete favourably in all-round fastness with the best wool colours available. The Irgalans can also be used on nylon, spun filament, silk, cellulosic acetate and for printing on fabrics, making them versatile indeed. Their unique fast-drawing properties in a sense actually enhance the final quality of frabric because it reduces the time required in the dye bath, and therefore cuts down the chances of deterioration.

Another Geigy achievement was the development of a series of optical brightening agents, known as Tinopals, for all fibres and even for paper. These substances make materials treated with them " whiter than white ", without bleaching agents, and constitute one of the most important recent strides in the wet processing industry. At least one well-known brand of cigarettes comes in white packets treated with Tinopals to give the whitest effect possible.

It is axiomatic that dyestuff manufacturers have to keep pace with textile technology generally. So as one new synthetic or man-made fibre after another was introduced, Geigy researchers developed dyes engineered specifically for them. Geigy's most

recent contribution to dyestuff progress was the development of a series engineered specifically for Orlon. (DuPont's Acrylic Fibre). This series, called Maxilon, overcame the serious drawback of existing basic dyes used on Orlon in that they provided near maximum lightfasness, whereas dyes formerly used had comparatively poor light fastness on Orlon. Accordingly, Orlon fibre's use was restricted to merchandise used mostly indoors. With the Maxilons, the use of Orlon for outerwear was made possible and has increased tremendously, during the past few years.

Geigy is also a major factor in the production of Vat Dyes, the bright, fast-color dyes favoured for cotton and silks. The company has also developed numerous agents which have improved dyeing and other wet processing operations, such as retarding agents.

It was inevitable that Geigy's research experience and knowledge of dyestuffs could be directed to other useful fields. For example, scientists had been searching for years for an ideal compound for lastingly mothproofing woollens. The best clue as to the direction researchers should take was supplied by a German scientist by the name of *Meckbach*. Meckbach chose to explore the oft-mentioned theory that green woollen goods seemed to be impervious to moth damage. Meckbach conducted hundreds of experiments to prove this theory and came up with the discovery that a dyestuff, Martius yellow, which was combined with blue to make green, did, indeed, impart protection to woollens against moth and beetle larvae. He figured that if he could find a red and blue with similar properties, he would have solved the problem of moth-proofiing woollens during dyeing operations. After countless more experiments, however, he failed to find any such materials so he abandoned his experiments.

During the late twenties, Geigy researchers started their own search for a good mothproofing compound that could be added to the dye bath to give lifetime protection to woollens against insect damage. They logically began where Mackbach left off — but instead of looking for coloured substances, they decided to look for a colourless material. Ten years and 88,000 experiments later they came up with what appeared to be the ideal substances. This compound is known technically as di-chlorodiphenyl ether dichlorodiphenyl urea, a coal tar derivative. It is called, however, Mitin, derived from the French word for moth " la mite ". Mitin is applied to raw stock, yarn or piece goods usually during the dyeing operation. Mitin becomes chemically bonded to the wool fibres and remains effective as an agent to combat moth and beetle grubs which cause economic losses estimated to run into billions of dollars annually the world over. Mitin possesses all of the desirable qualities that Geigy scientists had prescribed: it is non-toxic, odourless, does not affect the hand of the fabric; is fast to light, perspiration, wet or dry cleaning and constant abrasion and weathering. Mitin was introduced in Europe in 1938, and found quick acceptance. Production of Mitin was held up during World War II, and it wasn't until 1950 that the first American-made item of apparel carried the label which indicated that it was " Mitin Durably Mothproofed". Since that time hundreds of manufacturers in the United States and Canada have treated several hundred million items of apparel, blankets, carpets and upholstery fabrics with Mitin.

It was in the course of the painstaking testing of the 88,000 formulae which eventually led to the development of Mitin, that DDT insecticides were discovered. Geigy scientists ascertained that DDT insecticides were a highly effective weapon against disease-spreading mosquitoes, flies and a host of other insects. The economic losses to crops alone, attributable to insects which could be thwarted by DDT insecticides, ran into countless millions. But the incalculable savings in human lives could undoubtedly populate another continent.

During World War II, Geigy U.S.A. worked with the U.S. Armed Forces in developing the use of DDT Insecticides. DDT insecticides have been credited with having been a major aid to the Allies in winning the war in the South Pacific by vanquishing even deadlier foes than arms-bearing humans and death-dealing planes — malarial mosquitoes. DDT insecticides post-war contribution to the improvement of public health ranges from reducing infantile dysentery in southwest Texas, wiping out malaria in Sardinia, combating cholera in Egypt and sleeping sickness in West Africa to eliminating deadly black widow spiders from Long Island and quelling locust plagues in Australia.

It is not surprising then that *Dr. Paul Muller,* the Geigy scientist who led the research experiments that resulted in the discovery of DDT insecticides, was awarded the Nobel Prize for Physiology and Medicine in 1948, an honour of which Geigy is particularly proud.

— In the field of agricultural chemicals, to which DDT insecticides logically belong, Geigy has also made other important contributions, the latest of which is Diazinon. Diazinon is one of the most effective agents found to date to combat cockroaches and other insects. Today, Geigy has a full-fledged agricultural division which manufactures many substances to protect our food supply.

Geigy has likewise made an important name for itself in the field of medicine. Among its most noteworthy developments since it set up the Pharmaceutical Division in 1947, are Butazolidin, a highly effective anti-arthritic agent, Medomin, a tranquilizer and is a presently marketing Preludin, an anti-obesity product.

Geigy inevitably entered the industrial chemicals field, in 1948, and set up a separate division for its operations. The aforementioned optical bleaches were the product of this division which also makes auxiliary products for the soap, cosmetic and textile industries.

Thus, in this four-fold manner does Geigy contribute greatly to better living for people everywhere. Geigy looks forward to similar achievements during its next 200 years.

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The world-wide chemical complex, the highlights of whose accomplishments are briefly described above, had a humble beginning in 1758, in the venerable town of Basle, where a young merchant, Johann Rudolph Geigy opened a trading house to deal in colouring materials such as indigo, blue and yellow dyewoods and quinine bark; sudorific herbs, purgatives, and other medicinal substances; coffee, pepper, nutmeg and other spices.

Shortly afterward, young Geigy joined forces with an apothecary and started a line of pharmaceuticals. The market for dyestuffs was growing apace, while the demand for medicinals was comparatively meagre, so the firm concentrated on dyestuffs and other materials more in demand.

In 1830, Carl Geigy, the founder's grandson, decided to shift from being strictly a trader in raw materials to an actual producer of dyeing powders, so he built a mill in Basle, where imported dyewoods were pulverized and sold to the textile trade.

By 1856, the company had grown successfully, and Geigy converted from this primitive operation to a steam plant for improved and expanded production. By this time Johann Rudolph Geigy, a fourth generation descendant of the founder, was the firm's head. In that same momentous year, William H. Perkins, young English scientist, revolutionized the dyestuff industry when he synthesized the first coal tar dye, Mauveine. Three years later, Geigy's scientists, prodded by the head of the company who envisioned a great future for dyestuffs, synthesized their first dye.

Geigy financed a former associate, J. J. Muller, in the building of a factory to produce the so-called aniline dyes. This factory was so successful, Geigy brought it outright.

In the 1880's, Geigy set up its own research division to develop new dyes. In 1888, Geigy engaged Traugott Sandmeyer to head its scientific research division. He produced a long line of new dyestuffs which firmly established the Geigy firm as one of the most important in the highly specialized field in Europe.

As the firm expanded production, Geigy sought new markets and built new plants in Russia, France and Germany. Sales offices were established in such far-apart places as India and New York, Boston, Philadelphia and Toronto.

In 1901, the firm became a stock company, and in 1914 it adopted the name of J. R. Geigy SA, by which the parent company is still known. The first Geigy company in the U.S. was formed in 1903. Up to World War I, the company merely imported and sold dyestuffs produced by the parent company in Switzerland. During World War I, and afterwards, when supplies were cut from Switzerland, Geigy acquired production facilities in the United States, and eventually founded new subsidiary companies in England and started operations in Italy.

Following World War I, Geigy became associated with the Cincinnati Chemical Works, in Ohio, which has been expanded to Tom's River, New Jersey and is known as Tom's River Cincinnati Chemical Corporation.

Thanks to its work with DDT insecticides the company became established as a major factor in the production of pesticides. Its plant in McIntosh, Alabama, is one of the largest American producers of DDT, and other agricultural chemical specialties. The Pharmaceutical Division was formed in 1947, to reach the medical profession with new drugs coming out of Geigy laboratories.

In 1948, Geigy acquired the Alrose Chemical Company, and created the Industrial Chemical Division. This division has a plant in Cranston, R.I., where they make auxiliary products for the soap, cosmetic and textile industries. Geigy's most recent expansion has ben in the Textile Pigment Printing field and is presently manufacturing these popular products in the Cranston, R.I. plant.

Up until the summer of 1956, the headquarters of the American Geigy Company had always been in New York City. Then the company moved to a specially built complex of ultra-modern buildings at Ardsley, New York, 20 miles north of Grand Central. One of the most interesting features of this new plant is the magnificent laboratory conducted by the Dyestuffs Division.

Geigy also maintains a warehouse and mixing plant at Bayonne, N.J.

Today, the Geigy organization includes more than forty separate companies, all operating as subsidiaries of the parent company, J. R. Geigy S.A., Basle, Switzerland. Geigy offices, plants and subsidiaries are located in every major country of the world. The U.S. company, Geigy Chemical Corporation, with its four divisions, has branch offices and laboratories in Charlotte, N.C., Chattanooga, Tenn., Chicago, Ill., Los Angeles, Calif., Newton Upper Falls, Mass., Philadelphia, Pa. and Portland, Ore. There's also a Canadian branch office in New Toronto, Ont., Canada.

Geigy looks forward to a future in which it will continue to make even greater contributions towards a better world.

OUR NEXT ISSUE

Our next issue will be published on Friday, 26th February 1960. We take this opportunity of thanking the following subscribers for their kind and helpful donations over and above their subscription: G. E. Suter, E. von Bergen, P. Schnetz, H. Kunz, A. E. Wehrli, Armand — Roger Tissot, W. Goldmann, G. Keller, W. Weber, M.A. Mauch-Modica, Mrs. Th. (Johannesburg), J. B. Brutsch.