

GERMANY'S MASTER PLAN

The Story of Industrial Offensive

JOSEPH BORKIN and CHARLES A. WELSH

with an Introduction by THURMAN ARNOLD

DUELL, SLOAN AND PEARCE
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Fourth printing

TO L. H.

A mighty maze, but not without a plan.

—Pope

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INTRODUCTION

THIS book is a brilliant and arresting exposition of the results of the disease of cartelization. In all commercial civilization great industries rise out of initiative and superior efficiency. At a certain stage in their growth, hardening of the arteries takes place. Industrial leaders believe that the time has come to rationalize and stabilize production. Restricted production, high cost, and low turnover become the order of the day. To maintain that order, new industry must be kept out of production and old industry must not produce too much because, according to this order of ideas, too much goods is not wealth but distress goods and an undesirable surplus. Prices and production become fixed at levels which will pay dividends on an existing capital structure. Industrial progress becomes sluggish and then stops. The productive capacity of the nation is curtailed. It is an order of ideas that can produce neither wealth in peace nor strength in war.

There is no short way of defining a cartel. For present purposes we may describe it briefly as a small ring of producers or distributors who have acquired control of domestic or foreign markets. That control is justified as

a rationalization of industry management for the purpose of expert economic planning. It is used, however, to crush new enterprise and to prevent maximum production.

The first symptom of cartelization is an unbalanced exchange between organized industry which is restricting production and unorganized farmers and small businessmen who are unable to restrict production. The farmer becomes unable to buy enough industrial goods to keep factories running. Labor is laid off, thus restricting purchasing power still further. Goods pile up in domestic markets because they cannot be distributed at the artificial levels maintained by the cartel. People begin to talk about over-production, even in the face of scarcity in terms of actual need.

The next symptom is the attempt of the domestic cartels to control foreign markets so that the nation can get rid of this so-called over-production, this inconvenient wealth that threatens an artificial price structure. International cartels are formed, dominated by private groups without public responsibility, who control the foreign economic policy in the interests of international scarcity. With the growth of these international cartels democracy becomes a shell which conceals the power of private groups. Political freedom cannot exist except when it is founded upon industrial freedom. If a private group controls a man's livelihood it can control both his actions and his philosophy.

And so with the progression of the disease of cartelization. A new political philosophy arises justifying centralized planning of production and distribution. The competitive race for efficiency which is symptomatic of a young and vigorous commercial organization is denounced as waste.

Socialists eagerly advocate this new order. Their only quarrel with industrialists is in the selection of those who will manage the brave new world. Socialists want to recruit the managers from the ranks of the academic thinkers sympathetic with the underdog. Industrialists want to choose them from the cartel leaders. Both groups are ready to abandon industrial democracy. Thus a culture that is willing to embrace a political dictatorship spreads over the thinking of the Nation.

In the first stage of this struggle between socialists and cartel managers the industrialists win because they start out in the seats of power. They fail to maintain that power, however, because their policy of stabilizing prices at home prevents the distribution of goods—creating idle capital and idle labor—want in the midst of plenty. Before Hitler's rise to power, Germany had reached a stage under private cartel domination when agricultural products, though scarce, sold at ruinously low prices. Industrial products, though plentiful, could not be distributed in Germany. The wheels of industry stopped. There was an irreducible minimum of 7,000,000 unemployed.

When private industry fails to distribute goods, Government is compelled to step in. Deficit financing, subsidies, and huge relief rolls grow with alarming rapidity. In this stage the writers and thinkers of a socialistic tinge flood into Government with dreams of a new world arising out of the collapse of capitalism. But, unfortunately, for socialistic dreamers the techniques of acquiring and holding power in times of economic chaos require individuals of a tougher and less humanitarian mould. In other words, only a Hitler had the ruthlessness and cold cruel realism to consolidate a position of power out of the collapse of the German economic structure which the cartels had brought about.

And thus the vast centralized cartel organization of Germany became a tool in the hands of a dictator who no longer operated for private profit but solely to serve a ruthless ambition. The cartels of the democracy were easy dupes. Hitler was able to aid them in restricting their own production, while Germany's production went ahead by leaps and bounds.

The soft and opulent business organizations of England and America were intent on the pursuits of their short-run policies of restricted production, high costs and low turnover. They saw in German cartels an ally, not an enemy.

To such international cartels we owe the peace of Munich. To our own cartels we owe the failure to expand American industry prior to Pearl Harbor. To

the interests of these cartels in stabilizing prices and restricting production we owe our present scarcity in all basic materials.

To a large extent our present industrial unpreparedness of this war is due to the fact that Germany through international cartels built up its own production and assisted the democracies in restricting their production in electrical equipment, in drugs, in chemicals, in basic war materials such as magnesium and aluminum. International cartels with the active assistance of American interests have operated to deprive us of markets in our own hemisphere by giving them away to Germany.

We are now faced with the necessity of making our industrial democracies so efficient that we can win this war, which is essentially a war of industrial production. Our cartel structure has weakened us spiritually by introducing an alien philosophy which leads us to distrust our own economic traditions. It has weakened us materially by making us afraid of full production because it creates surpluses which cannot be distributed after the war.

We must, if we are to fight this war with enthusiasm for our own way of life, destroy both the philosophy and the private power of domestic and international cartels over foreign and domestic economic policy. At such a time this book should be read by everyone interested in the economic future of America.

No other book that I know of analyzes in such vivid

detail the growth and activities of international cartels. The writers have studied the cartel problem not only from books but from first-hand information and observation. Mr. Joseph Borkin has been for many years Economic Advisor to the Antitrust Division, Department of Justice, particularly in relation to foreign international cartels. The fact that the public is now aware of the international cartel structure is in a large measure due to his work. Mr. Welsh is an authority on international trade and finance, and is a cartel expert for the Office of Price Administration. Both of them have shown exceptional ability in this particular field.

While of necessity the emphasis of this book is upon the war problem, I would suggest that the reader consider it in the light of the long-run economic policy for America. We cannot turn over our future economic policy to private groups without public responsibility as we have done in the past. We not only must win the war but the peace which follows. We cannot win the peace if the cartel problem remains unsolved.

I must conclude this introduction with a caveat because of my official position. The research and conclusions of the writers of this book have been done outside of their official duties in the Government. They have not been checked or approved in any official way.

THURMAN W. ARNOLD.

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GERMANY'S MASTER PLAN

1. THE GRAND ILLUSION

THIS Global War is fought in the twilight of a military and economic age. Had Germany waited for the dawn of the coming era to launch its onslaught the fate of the world would have been sealed.

The tragic consequences of too little and too late which plague the United Nations have an ironic compensation. Germany struck too soon.

For this one reason have we been granted a brief hour of respite. In this short interval of time we must exploit our chance or perish.

Because Germany precipitated war before the master plan for conquest was completed, her armies at the end of 1942 were spread from the Barents Sea to the Mediterranean, from the Channel Islands to the Caucasus,—conquerors, but not victorious. The most comprehensive blueprint for empire which the world has known was meticulously drafted over a period of twenty years by German militarists. But, like Imperial Germany in 1914, the Third Reich made a fundamental and irrevocable error in the execution of its designs. How this master plan was created, and why it was mistimed, are

questions which the world must ask and answer now, lest Germany regain its impetus sufficiently to win, in this or in another Global War.

To wage a war in modern times is to weld into a gigantic machine the resources of our technological arts. Petroleum, rubber, and a host of chemicals are the fuel of War, light and heavy metals its armor. Without aluminum, magnesium, tin, tungsten, molybdenum, quinine, those who would fight a Global War cannot long survive. The buttress of our strategy rested secure in the knowledge that we, not they, commanded these resources. The aluminum, the tin, the manganese, the nickel, the quinine, the oil, and the rubber are drawn from the bowels of an earth which was our preserve. The seven seas were the private lakes on which our ships patrolled, and which the guns of our battle-wagons ruled without a rival. Any nation who would challenge this supremacy was doomed to failure.

On this grand illusion we gazed unperturbed as Germany marched into the Rhineland, effected Anschluss with Austria, and negotiated Munich. These were paper victories. We still controlled the reservoirs of power, and Germany could not tap them. Prophets of victory predicted German collapse from every conceivable point of view. The few voices that were raised in question were shouted down or shrugged aside. Thus were the books of judgment reckoned.

Those who saw in airpower the horizon of a new

world were execrated for suggesting that a battleship could be jettisoned by a flying artillery platform. Not since gunpowder erased the bloom of chivalry and made the armor of knighthood a museum piece had there been an equal convulsion in military relationships. As gunpowder had given war a greater range, so airpower opened up a new dimension. In this new relativity of space, the battleship became a quarry. Norway, Pearl Harbor, and Singapore are tragic memorials to the vision of the Cassandras who foretold the doom of ships.

For seventy years the grand strategy of Great Britain in her struggle with the growing might of Germany has been embodied in the British fleet. Blockade—enforced by British dreadnaughts and supported by the naval power of the United States—has been the basic element of Britain's hope to thwart the German menace. This policy has been traditional—fixed and rooted in the economic and military structure of the Empire. In 1914, as in 1939, Great Britain and her Allies pivoted their plan to beat back the German thrust on a policy of containment. Simple in its grandeur and apparent impregnability, this barricade of the sea lanes had the semblance of a wall which the mailed fist could never breach. Winston Churchill with dramatic eloquence etched the articles of British faith on the eve of Germany's first lunge: "Consider these ships, so vast in themselves, yet so small, so easily lost to sight on the surface of the waters. . . . They were all we had. On them, as we conceived, floated

the might, majesty, dominion and power of the British Empire.”

Germany has always understood the fixed and rigid strategy which Britain must pursue. What other course was open to the Island State? Obsessed with the necessity of expansion, Germany tirelessly probed the seams and joints in the British dike. The test tubes glowed and sputtered in German laboratories, and Britain's bulwark slowly began to rot.

In 1912 explosives for Krupp's cannon were still in hostage to the nitrate beds of Chile. The long haul across the seas dominated by Great Britain was the leash which bound Germany to peace. In 1913 Germany cut the knot by making nitrates out of air. In 1914 Germany went to war.

The von Schlieffen Plan called for a swift and irresistible march to Paris, to end the war with a paralyzing blow which would numb the will of her opponents to resist. Because von Schlieffen was not diligently obeyed, the war lasted longer than had been expected, and hence was lost.

The tourniquet of ships remorselessly constricted the German arteries of supply. Nitrates alone could not stave off the rusting of the German mechanism. Forced at last to retire, Germany studied the imprisoning cordon with even greater care. Britain and the United States relaxed, more sure than ever that the barrier held firm. But they reckoned without the cunning of German

militancy. As technology went forward and German industry became more integrated, its dependence on the outer world increased. With every addition to the myriad of materials not found within the Reich, it seemed to Britain that the German threat diminished. Germany had no oil; a new war would require fathomless reserves. Great Britain and the United States controlled the wells of more than half the globe; the United Nations controlled them all. Germany had no rubber; Britain doled it from Malaya to the world. It was impossible for Germany ever to escape this strangulation in another war.

Britain was not alone in her assurance. The United States withdrew in haughty isolation. Even if the have-not power on the Continent should, in desperation, chance another reckless try, Britain and our eastern seaboard were secure.

The sweep of German aims in German history has had one all-embracing theme: world conquest. The scope and scale of Germany's long-range plan is measured by its grasp of Allied limitations. The principles of this scheme have been made plain by the sequence of events. The conquest of the Continent could never yield enough to be a recompense for the wealth beyond the sea. To nullify blockade and remove the function of the British fleet, Germany strove for decades to become a fortress of self-sufficiency. Cartels became the unit of German business, and industry was geared to the engine

of the war machine. Once started, the "wheels ran truly," and with increasing speed ground out the where-withal for war.

The German military effort is epitomized in blitzkrieg. But fundamental to the choice of weapons was the desire to end forever Britain's mandate of the seas. Unable to meet the British fleet on an equal plane, Germany failed in the World War to undermine it by the submarine. Now navies could be overwhelmed from above. Heinkels, Messerschmitts, and Focke-Wulfs were the synthesis of firepower on land and sea.

Light metals, high octane aviation gas, synthetic rubber—products of German wizardry—all were marshalled for the coming blow. Air transport was to be the hub from which, in any direction, Germany might capitalize its interior position. Cold logic prescribed the merger of economic and air command. Hence, the warlords tied all planning to the growth of the Luftwaffe.

The execution of these designs hinged on the evolution of technology. The harbingers of scientific change were visible in 1918. Implacable in its devotion to conquest, Germany strained to hasten the new industrial revolution to a point where its optimum force could be turned against the world. In this broad pattern the cartels were more than centers of research and business. They took their place as an integral part in the projection of Germany's program.

Armed with patents, the German cartels laid siege

to the economies of prospective antagonists. How perfectly these tactics interlocked in the design is evident in the succession of maneuvers which made up German policy during the 1920's. A planned inflation liquidated the cost of the first World War. From the day that Hjalmar Schacht stabilized the mark, Germany extended an alluring invitation to foreign capital. The victors, not the vanquished, paid for German reconstruction and rearmament.

Suddenly in 1926 Germany made known a portentous discovery: oil could be obtained from coal, and rubber could be obtained from oil. The obstructions on the road to Armageddon were being cleared. War became a certainty. Only time and timing were in doubt.

It was as though at a given signal the seacocks of the British fleet were opened and the proud ships sank in futile dignity. The whole world strategy of the English-speaking nations had slipped its anchor and drifted aimlessly toward oblivion. It would seem incredible that in the halls of state in which the future of the English-speaking peoples was solemnly discussed there should not have been detected the direst omens of catastrophe. The chain was broken, and Germany was free once more to test the mettle of democracy. Casually, in obscure items in the journals of chemistry and commerce, hints appeared of German economic plans. Clouded in a fog of polysyllables, these notices caused no alarm to those who shaped our policies of State.

Within the realm of industry, however, clamorous conferences were held. Hurried visits to Germany by captains of finance testified to their concern. Contracts were made, interests protected, stability insured. Everywhere there was a feeling of relief. With workmanlike precision, Germany drew together in a grandiose plan of conquest the fears of businessmen, the indolence of politicians, the apathy of democratic peoples, and fashioned in her factories the weapons which would shatter Allied strategy.

Germany struck too soon. Confident that her new technology had given her the implements of certain victory, Germany made—for us—a fortunate miscalculation. Her new machine was not quite ready: it could demolish a decadent France, but could not leap the Channel; it could provide all German needs if victory came fast; it could not touch Detroit.

Whether this forced haste only delays German victory or deals it a mortal blow is for us to decide. We now can grasp the industrial initiative. A few more years might have been enough for the full fruition of the new technology, and Germany would have been unconquerably stronger. Would this postponement have found the democracies armed for the new era? If history is any guide, the same smugness which greeted Germany's development of oil from coal and the rising might of Germany's airpower would have continued to prevail.

Nothing less than Dunkirk could disturb the peaceful slumbers of democracy.

These new scientific forces may yet reach their zenith during the present war. We are in a race in which technology is the decisive, telling factor. In the words of Lieutenant-General H. H. Arnold, chief of our own Air Force, "It may be that the next national determination will be that the nation which produces one thousand 10,000-mile bombers first will be able to conquer or save the world."¹

2. THE INDUSTRIAL OFFENSIVE

EVERY junkheap of scrap rubber, every pile of aluminum pots and pans which Americans build in public squares is an unwitting tribute to the efficiency of German cartel warfare. As the war progresses, the true significance of shortage becomes clearer. Because of cartels,* critical military goods are either unobtainable or must be carefully rationed to the Army, the Navy, and the Air Force.

The sound and fury of Global War assail our minds. In the tumult of blitzkrieg and terror, we overlook the industrial offensive which Germany began long before the zero hour.

The United Nations were not prepared for the storm

*Like the term "pool" or "trust," the term "cartel" is subject to various interpretations. As used herein a cartel means a combination or agreement, national or international in scope, in which the members, whether corporations or governments, seek to control one or more phases of the production, pricing, and distribution of a commodity. Most cartels of the modern type are trusts which govern whole fields of technology through patents, know-how, or control of facilities. World industries dependent upon localized raw materials are cartelized by similar methods. Cartels in democratic countries are formed for two purposes: to eliminate competition and to offset the hazards to vested interests which derive from technological change. In totalitarian states cartels are instruments of national policy, and in a warlike country, such as Germany or Japan, cartels take their place in the scheme of warfare.

of propaganda or the lightning thrusts of Axis arms. Surprise attacks wrought havoc in our defenses, and the strategy of terror demoralized whole nations. We have recovered from the initial shock and pain inflicted on us. But because we disregarded the industrial war which Germany waged through cartels, we fight today distracted by the gaps in the fabric of our economy left by cartels.

Wherever there was a cartel before, in 1942 there was a military shortage. The Army and Navy petitioned civilians to turn in binoculars and lenses. The Baruch Committee reported that if we do not solve the synthetic rubber problem, we face a "civilian and military collapse." The gallant stand of MacArthur's men on Bataan became more desperate because they found themselves without quinine. The growing priority lists of chemicals and plastics were an inventory of cartels. When we tried to tool up our new factories, with every second of passing time working against us, the lack of tungsten carbide blunted the edge of our effort. This roster of scarce materials and the absence of substitutes have a common cause.

These shortages speak volumes for the brilliant planning of the German offensive. The first "Report to the Nation," issued January 14, 1942, by the Office of Facts and Figures, says:

[The enemy] has worked for many years to weaken our military potential. Through patent controls and

cartel agreements he succeeded in limiting American production and export of many vital materials. He kept the prices of these materials up and the output down. He was waging war, and he did his work well, decoying important American companies into agreements, the purpose of which they did not sense. Our businessmen were peaceful traders. The enemy's businessmen were and are all over the world agents of aggression.

The list of materials affected is long—beryllium, optical instruments, magnesium, tungsten carbide, pharmaceuticals, hormones, dyes, and many more. When you match each product with its military use, the significance of the attack becomes clear. Beryllium is a vital element for alloys that make shell springs; magnesium makes airplanes and incendiary bombs; tungsten carbide is essential for precision machine tools.

Concealed behind dummy corporations, the enemy went unchecked for years, *using our own legal machinery to hamstring us.* [Italics added]

During the past twenty years, this cartel device has been the first line of German assault. Not all cartels were controlled by German concerns. Yet, because restriction in other countries served the interests of Germany, every Dutch, English, or American monopolist who signed a contract or instituted a policy limiting his output added to German power.

In the years immediately preceding war, the com-

parative production figures of the United States and Germany for those materials on which twentieth-century military efficiency most depends were all in Germany's favor. In 1939, Germany's plants were capable of turning out 100,000 tons of synthetic rubber. Our plants were still experimental, making none for commercial use. In 1938, Germany produced 175,000 tons of aluminum. The United States made only 130,000 tons. Germany's magnesium plants poured forth over 16,000 tons of this new metal. We made 3,000 tons. Germany produced and used in its machine tools and armaments from twelve to twenty times more tungsten carbide than the United States.

The effects of Axis victories, in Europe and in the Pacific, give them an advantage which we will spend many thousands of lives to overcome. That reversal of position is starkly evident in the following figures on some of the major resources:

PERCENTAGE OF AXIS CONTROL OF WORLD
PRODUCTION¹

| | 1938 | 1942 |
|------------------------|------|------|
| Rubber | 0 | 91.1 |
| Cement | 33.7 | 51.6 |
| Coal and Lignite | 32 | 45.4 |
| Iron Ore | 7.3 | 44.6 |
| Manganese Ore | 10 | 34.9 |
| Tin Ore | 9.4 | 73.2 |
| Bauxite | 25.2 | 65.8 |

These figures have sombre implications for the United Nations. The unused capacity of each industrial plant which was left idle because of cartel agreements increased Germany's lead. Our control of many raw materials has been wrested from us. But we lost as much or more by wilful and willing restriction of output and capacity. Stupidity multiplied by cupidity, the desire for "business as usual," was the mark of the cartel mind. Germany counted on such behavior, and was aided at every turn by its results.

Germany has long understood this strategy of total war. Karl von Clausewitz,* the father of modern German militarism, set out its major premise when he said, "War is no independent thing; the main lineaments of all great strategic plans are of a political nature, the more so the more they include the totality of War and the State." To von Clausewitz, peace was a continuation of war by other means. In effect, he said to Germany, "Disarm your enemy in peace by diplomacy and trade if you would conquer him more readily on the field of battle." This philosophy of war-in-peace became the keynote of Germany's political and economic intercourse with other nations. These tenets explain why, twice within a generation, we have entered war not only facing the might of German armies, but shackled by economic bondage to German industry.

* 1780-1831.

German-controlled cartels were at all times the servants of German interest. That their loyalty to Germany was undivided explains the uniformity of the agreements which they made. Germany's industrial attack had as its cardinal purpose the reversal of blockade. Patents and secret "know-how" were used to bar our access to our own technology.

The first World War should have taught democratic nations that Germany used international cartels as the spearheads of aggression. Neither before 1914 nor before 1939 would the industrialists and financiers of the democracies learn the destructive meaning of this outlook. To businessmen in the United States, England, and France, international cartels were an efficient means of guaranteeing monopoly. Industrialists outside of Germany thought in terms of low output, high prices, and maximum profits. They regarded divisions of both territory and fields of production as comfortable and easily policed methods by which they could free themselves from competition and create spheres of monopoly.

The softest impeachment that can be made of those American, British, and French industrialists who consorted with German interests is that they knew not what they did. This is an alarming commentary on the profound political astigmatism of the proud management groups responsible for our industrial welfare. That our loss of the industrial initiative and the rupturing of our

military potential have not had more serious consequences can be credited, not to any foresight of monopolists or of government, but to the inherent flexibility of democracy. Despite its many weaknesses, democracy does have "grace under pressure."

3. I.G.—THE VIALS OF WRATH

NO better insight into the German strategy of economic war could be contrived than the history of Interessen Gemeinschaft Farbenindustrie Aktiengesellschaft, commonly known as I.G.*

The record of I.G. in the twentieth century is a recital of Germany's attempt to use scientific achievements to control the world. I.G.'s commercial peacetime monopolies have been the support for its services to German militarism. I.G. has never foregone an opportunity to turn a pretty penny in a business sense, however, if Germany's interest permitted. Time after time financial profit has been subordinated by I.G. to nationalistic aims. While I.G. may prefer to gain its own ends and enhance the power and wealth of Germany by economic means, it has consistently abetted and given force to purely military plans. The audit of I.G.'s contributions to Germany's martial designs is long.

The antecedents of I.G. reach far back into the industrial revolution of the nineteenth century, specifically into those developments which resulted in the establish-

* Community of Interest of Dye Industries, Incorporated.

ment of the coal tar chemical industry. The history of coal tar chemicals is in itself one of the most fascinating phases of nineteenth-century industrial development.

In 1856 in the course of his experiments with coal tar, theretofore regarded as an interesting but essentially useless material, a young English chemist, William Henry Perkin, found that it could be transformed into a synthetic aniline dye. This discovery was to bring Perkin (later Sir William) world-wide acclaim. The glory of a major scientific contribution belongs to Perkin and to England, but Germany usurped the gain. At the time of his discovery Perkin was only 18, still a student of the famous Professor Hofmann at the Royal College in London. Perkin had started out, strangely enough, to prepare artificial quinine. He wound up with a delicate purple solution called mauveine, which was to give name to the Mauve Decade, and to color the future military and industrial history of the world.

Perkin himself understood the profound and revolutionary nature of his findings, but the mentally stuffy industrialists of Victorian England failed to grasp their significance. Exhibiting a complacency which would repeatedly imperil the British Empire as the future unfolded, neither the Government nor British capital supported Perkin's struggles to found a coal tar industry. In time this lack of insight so exasperated Perkin that he reproached them for the dalliance and lack of imagination which cost them the industry.¹ Had Perkin's

genius and patriotism been given the recognition it merited, England could have become the leader of the organic chemical industry. What is more, there might have been no I.G., and without I.G. Germany could not, twice within a generation, have filled the vials of wrath and hurled their Prussic acid in the face of the world. What might have been was not to be. Perkin's brilliance could not compensate for the dilettante attitude of the universities toward chemical research or the dullness of official and financial minds.

If England was not sufficiently prompt and alert to change, Germany immediately seized on Perkin's discovery. Within a few short years the parent firms of I. G. Farben had been established, and their grip on the dye-stuffs industry made secure. German chemists entered upon a perfect frenzy of research. Perkin's own teacher, Hofmann, returned to Germany and helped found the new laboratories. When Perkin's next contribution to the industry, the preparation of an equivalent for natural red dye (madder), was announced and patented, he found that Dr. Caro of the Badische Anilin Works had been before him. Perkin's patent was dated June 26, 1869, Caro's had been issued June 25. The processes were somewhat different, but the Germans had won a major research victory symbolizing their capture of the initiative in the field, which they never lost.

Because of Germany's "patent" system in those early years, there were no barriers to the foundation of the

industry. The well-financed organizations formed between 1856 and 1880 expended huge sums on research and chemical facilities. As early as the end of the Franco-Prussian War, the ancestors of I. G. Farben were all strong "going" concerns. Once under way, the establishment of the German patent system of 1877 placed in their hands a shield and a spear. German patents in the hands of German industry have been a branch of German arms since that time.

The names of the firms which were eventually to become the I.G. are worth noting, for their trademarks have carried the banner of German economic imperialism to every land. These firms are:

1. Badische Anilin & Soda Fabrik, of Ludwigshafen;
2. Farbenfabriken vorm. Friedrich Bayer & Co., of Leverkusen;
3. Farbwerke vorm. Meister Lucius and Bruening, of Hoechst am Main;
4. Aktiengesellschaft für Anilinfabrikaten, of Berlin;
5. Leopold Cassela & Co., m.b.H., of Frankfurt;
6. Kalle & Co., A. G., of Biebrich.*

These concerns in time became known as the "Big Six" and were from their inception primarily responsible for the amazing growth of the German chemical industry. Germany's economic might was "built out of a sandbox" by her chemical and metallurgical industries,

* See Appendix.

and the Big Six were the principal artificers of the gigantic structure. The methodical but almost frenetic determination which inspired German research did not observe any scruples in "borrowing" inventions from other countries. As Perkin told the story to Lord Exmouth:

He went so far as to say that, for years before he left the business, he and other English chemists had entirely abandoned attempts to patent their discoveries in Berlin. He had found, by sad experience, that whenever he sent over an application for a patent on a new dyestuff, or new chemical compound of importance, the German Patent Office would at once call in, for consultation, the leading German chemists who were interested in that line of work. He would get request after request for more and more detailed information about every part of the process; and then, when they had got from him every bit of information that they could, they would grant the patent to some one of his German competitors. . . .²

The attitude taken by the German chemical concerns toward the industries of other nations reflected the same chauvinistic inspiration that underlay her political and military views: an overweening ambition to acquire a "place in the sun," driven by a transcendental assumption of the predestined supremacy of German *Kultur*. While this psychological motivation may have been mystical and even irrational, the commercial relations of the Big Six exhibit a completely realistic "trading

philosophy" in the course of their transactions with other countries and in the adaptability of their management to domestic political and social changes.

Rapid growth, increasing economic power, and a tendency to carry industrial integration both vertically and horizontally to its limits favored the Big Six in their single-minded pursuit of world-monopoly in the organic chemical field. After it was too late, England realized that it had lost the coal tar industry. The British Government became aware that the German economic offensive had been mounted, and that the citadel of England's historic industrial leadership had been surrounded. That the tactics of I.G. today are an extension of the early practices of its forebears is witnessed by the statements of Joseph Chamberlain in 1883 and Lloyd George in 1907. Chamberlain, speaking in support of the proposed compulsory licensing of patents in Great Britain, said:

It has been pointed out especially in an interesting memorial presented on behalf of the chemical industry that under the present law it would have been possible, for instance, for the German inventor of the hot blast furnace, if he had chosen to refuse a license in England, to have destroyed almost the whole iron industry of this country and to carry the business bodily over to Germany. Although that did not happen in the case of the hot blast industry, it had actually happened in the manufacture of artificial colors

connected with the coal products, and the whole of that had gone to Germany because the patentees would not grant a license in this country.⁸

In commenting on this, Lawrence Langner, a well-known authority on International Patent Law, says:

In other words, the first British compulsory license law was directed against the practice of the Germans in taking out patents on the chemical industry in England and using those patents to kill the British chemical industry.⁴

Lloyd George reiterated Chamberlain's view in 1907, in discussing prospective revision of British patent law, stating that:

Big foreign syndicates have one very effective way of destroying British industry. They first of all apply for patents on a very considerable scale. They suggest every possible combination, for instance, in chemicals, which human ingenuity can possibly think of. These combinations the syndicates have not tried themselves. They are not in operation, say, in Germany or elsewhere, but the syndicates put them in their patents in obscure and vague terms so as to cover any possible invention that may be discovered afterward in this country.⁵

In 1904 one of the decisive events of modern economic history transpired almost unnoticed. Dr. Carl Duisberg, one of Germany's foremost chemists, later Chairman of the Board of I. G. Farben, prepared a spe-

cial report in which he proposed the complete unification of the Big Six into an Interessengemeinschaft.

The three largest firms, Badische, Bayer, and Berlin, immediately entered into the first I.G. in 1904. Shortly afterward, Hoechst, Kalle, and Cassella formed a separate cartel. Mutual competition was eliminated, and technical experience and resources were pooled, with the result that the German twins had attained an almost absolute monopoly in the organic dyestuffs, pharmaceutical, explosive, and synthetic chemical industries of the world. Within a few years the two groups were fully united, and in 1916, when the Weiler ter Meer and the Griesheim Elektron companies were brought in, I. G. Farben's internal integration was complete.

From 1904 to 1914, I.G. made every effort to overcome Germany's dependence on foreign sources of supply. The preparation for the first "Chemists' War" in those ten years was carried on with characteristic Teutonic thoroughness. The chemical industry was welded into a huge arsenal. The economic structures of the countries which stood in Germany's way were corroded by systematic infiltration of I.G.'s chemical patents. Germany in 1904 was dependent on Chilean deposits for the nitrates used in fertilizers and explosives. The outbreak of the war was delayed several years until I.G. had perfected the Haber process for artificially fixing nitrogen. Literally, I.G. plucked enough nitrates from the air to feed German farms and cannon.

No sooner had war begun than the High Command cast about for a new and secret weapon with which to surprise the Allies. I.G. placed in the hands of the Kaiser's legions one of the most terrible of all implements of war: poison gas, the use of which was suggested by the same Professor Haber who had solved the nitrate problem.

Major Victor Lefebure, British Liaison Officer between Britain and its Allies on Chemical Warfare, reported on the preliminary research on gas at the Kaiser Wilhelm Institute as follows:

. . . There is evidence that the Kaiser Wilhelm Institute and the physico-chemical institute near by were employed for this purpose as early as August, 1914. Reliable authority exists for the statement that soon after this date they were working with cacodyl oxide and phosgene, both well known before the war for their very poisonous nature, for use, it was believed, in hand grenades. Our quotations are from a statement by a neutral then working at the Institute. "We could hear the tests that Professor Haber was carrying out at the back of the Institute, with the military authorities, who in their steel-grey cars came to Haber's Institute every morning." "The work was pushed day and night, and many times I saw activity in the building at eleven o'clock in the evening. It was common knowledge that Haber was pushing these men as hard as he could." Sachur was Professor Haber's assistant. "One morning there was a violent explosion in the room in which most of this war work

was carried out. The room was instantly filled with dense clouds of arsenic oxide." "The janitors began to clear the room by a hose and discovered Professor Sachur." He was very badly hurt and died soon after. "After that accident I believe the work on cacodyl oxide and phosgene was suspended and I believe that work was carried out on chlorine or chlorine compounds." "There were seven or eight men working in the Institute on these problems, but we heard nothing more until Haber went to the Battle of Ypres." ⁶

It should be pointed out that the dyestuff plants required no "conversion" either to the manufacture of gases or explosives. The basic and intermediate dyes are in themselves the direct sources of numerous military products.

These efforts by I.G. were not so widely advertised as those of Krupp, but were even more important, for without them Krupp's cannon would have been useless. Ludendorff, Chief of the German General Staff:

. . . supplements our information by telling us how he discussed the supply of war material with Herr Duisberg and Herr Krupp von Bohlen in Halbach, "whom I had asked to join the train" in the autumn of 1916. The former was the Chairman of the I.G., the great dye combine.⁷

Even today we do not know exactly when I.G. produced the new type of T.N.T. which was used in German shells. Germany lacked aluminum for metal alloys and

thermite bombs. I.G. brought forth magnesium. If Germany finally succumbed, it was not for want of anything that I.G. could do.

The force which I.G. added to the German drive was given even greater impetus by the economic weakness of the Allies. Not only had I.G. fortified Germany against blockade, but I.G.'s control of patents and "know-how" made it almost impossible for England or the United States to build and operate the chemical plants they needed so desperately in the World War. In common with other German international concerns, I.G. representatives had for many years conducted the most complete industrial intelligence service then extant. The invaluable knowledge thus accumulated was analyzed both by the German Government and by a central industrial bureau. This mass of data, which included geographic surveys, plant blueprints, working methods, and every conceivable fact which might be relevant, was the original basis of geopolitical science. The I.G. Sekretariat in Berlin has been, since its formation, a clearing house for the observations of its representatives, and undoubtedly possesses a quantity of such data existing nowhere else on earth.

The value of I.G. to Germany in 1914-18 is summarized by Major Lefebure in "The Riddle of the Rhine" in prophetic language:

On broad lines, the pre-war and war activities of the I.G. produced the same result as an attempt to

strangle the economic life of possible opponents, enfeebling their resistance to the subsequent delivery of a hammer blow designed to take maximum advantage of the situation thus created. Twenty years or more under the regime of a forceful economic policy, not without its sinister aspects, prepared the ground by weakening us in the concentrated chemical warfare which ensued. The success of this policy maneuvered us into such a position that we barely escaped defeat under the hammer blows of German chemical aggression. This in fact appears to have been the German conception of modern war in its relation to industry. . . .⁸

* * *

German sources tell us very little of the war activities and future significance of the I.G. A veil of secrecy seems to be cast over the whole matter, but behind this veil must exist an acute realisation of the value of the I.G. as a trump card for the future. Krupp is uncovered, the whole world was alarmed at its meaning for war, but heard with a comfortable sense of security how Krupp was exchanging the sword for the plough. But the gigantic I.G. controls in its great hand a sword or plough for war or peace at will.⁹

Germany lost the war, but neither by this loss nor during the period of social unrest and inflation which followed was the strength of the chemical combine vitiated. I.G. was stronger at the end of the World War than at its beginning, because the war increased the

tempo of its production. While it ostensibly passed through a critical period of reorganization, it actually lost no time in surveying its future possible courses of conduct, and reforming its network of commercial contracts with the markets of the victors.

The failure of the Allies to recognize that I.G. was not disarmed was not only criticized by Lefebure but by all who had directly suffered from the war activities of I.G. This oversight, whether due to the political myopia of the Allies themselves or to the astute dissemblance of the guiding interests in I. G. Farben, had repercussions in the war to come. I.G. concealed from prying eyes what it could of its real operations. The British Chemical Mission in March 1920 reported that:

. . . the German manufacturers, consisting of the powerful I.G. combination, were careful to do all in their power to hinder the work of inspection.¹⁰

An American observer, Lieutenant McConnel of the United States Navy, states:

. . . Upon arrival at the plant the Germans displayed a polite but sullen attitude. They seemed willing to afford the opportunity of a cursory inspection, but strongly objected to a detailed examination. On the third day of the visit the writer was informed that his presence had become a source of serious objection and that if his examination were prolonged a formal complaint would be submitted to the Peace Conference.¹¹

A foreign representative of the duPont company in 1920 said:

. . . Disarmament is a farce while Germany retains organic chemical monopolies.¹²

Late in 1925, the present I. G. Farbenindustrie was organized, including in its framework the preponderant bulk of German chemical companies. At the time of its renaissance, I.G. was capitalized at well over a billion marks and became, by virtue of its enormous plant, working force, and interests, one of the greatest industrial combinations in history. The reborn I.G. launched at once upon a massive program to unify control of the German economy. Krupp, Metallgesellschaft (the metal trust, partly government-owned) and Siemens-Halske became willing brothers-in-arms, under the aegis of I.G.

I.G. was now in position to begin its penetration of the chemical, pharmaceutical, and metallurgical industries and markets of the world. In particular, I.G. sought to form connections with the industries of the United States, Great Britain, and other industrial powers, at the same time that it extended its own distributing outposts around the globe. As stated before the Temporary National Economic Committee, the "colossal ramifications" of I.G.'s interests cannot be exhaustively indicated. It is probable that even after the protracted investigations by students and by government which have been undertaken in recent years, not all of I.G.'s links to American

industry or to South American markets have been brought to light. It is even more certain that all of its relationships outside this hemisphere have not been disclosed. Yet we know enough of them to state that I.G. at the outbreak of war in 1939 surpassed any single industrial group in the world in its scope of influence, in the diversity and range of its interests, and in the magnitude and comprehensiveness of its affiliations.

I.G. was and is by all standards of measurement the largest corporation in Europe, and one of the largest in the world, ranking below only the insurance and utility companies, and the colossal Standard Oil (N. J.). As an industrial combine, however, it is certain that I.G. is among the handful of truly world-wide international industrial concerns.

The terms "monopoly" and "cartel" are inadequate when applied to I.G. It is an agglomeration of monopolies and an aggregation of cartels. Beyond German borders I.G. is an international monopolist and, by reason of the number and size of international cartels in which it is a leading, if not in all cases a dominant member, there is justification for adding to the descriptions commonly employed to indicate the scope of I.G.'s interests. It is estimated that I.G. is a party to or the actual promoter of several hundred international cartels. Consequently there is sufficient excuse for coining a term which conveys a more accurate impression than monopoly or cartel. Perhaps by compounding the idea of uni-

versality and absolute control a term such as "panopoly" would be more fitting. In any case, I.G. represents the acme of pan-Germanism in the economic sphere.

I.G. in 1926 was the greatest combine ever formed in Germany, and its destiny of larger significance than that of any predecessor. The thrice-reincarnated I.G. was to become the chief advance agent of the Third Reich in the latter's pre-war machinations, not only for the purpose of hewing out the ultimate features of the autarchy so long sought by Germany, but to sap the economic structure of the chosen opponents. In the Four Years' Plan promulgated in 1936, it was announced that "powerful factories will be built according to their urgency. We shall begin with those for armament purposes; that is most urgent. Then come factories which are in other ways needed to make the Four Years' Plan a reality. . . . In a world governed by reason this would not be necessary, but the world is insane." Need it be said that the only world governed by reason, in the view of the authors of this plan, would be ruled by Germany, which has never quite comprehended why other countries were so "insane" as to be unwilling to accept such rule?

Even before the "plan" was announced, I.G. stood at attention, with six decades of service on its record, its hosts already deployed, the terrain in its arena of action already surveyed, its lines established. Werner Bruck in 1938 said, "The trust [I.G.] is a cornerstone in Ger-

many's plan for self-sufficiency as well as for armament."¹⁹ He might well have added that its drive for world-rationalization of the industries in which it was interested fitted neatly into the new schemes of world-domination nursed by German militarism.

As the story of I.G.'s cartel agreements with American, British, and other national monopolies progresses, there is a certain awesomeness in the sheer scale of its operations. The boldness and orderliness of its management, combined with a refined subtlety and political sophistication in business negotiations, command admiration for their artistic and scientific perfection. At the same time, it is clear that I.G.'s chief reliance was placed on the political density and financial greed of those with whom it dealt. The keenest business instincts, when not modified by industrial wisdom, can become a weakness, and on this weakness I.G. counted in nearly all of its transactions. Canny traders of the American type were to prove almost naïve when matched against the acuity and perspicacity of the exponents of I.G.'s economic philosophy.

It is not too much to say that the direction of I.G.'s policies in the years 1926-1939 was the work of genius, not burdened with ethical conscience. The coupling of economic and political insight in I.G.'s policies is clearly traceable in the fabric of cartel agreements which I.G. wove in American industry. The web of contracts in the dyestuffs industry, the pharmaceutical industry, the oil

industry, the synthetic rubber industry, the magnesium industry, and others, all promoted by I.G. with leading American concerns, affected the military preparedness and economic independence of the United States. Even today, they force us to do without materials, processes, and industries which in the normal course of competition would have been fully established at the outbreak of the war.

An outline of the actual corporate, physical, and capital structure of I.G. will indicate the basis upon which its power is erected. Each of the Big Six companies and the other major concerns included in I.G.'s first unification in 1904, or in its reorganizations in 1916, 1919, and 1925, was in itself a merger of many, in some cases scores, of smaller companies. Each of the Big Six was in its own right a cartel which represented not only the vertical integration of its particular phase of the chemical or metallurgical industries, but a horizontal association of smaller concerns operating in the same or closely related fields. Consequently, when we speak of I.G. it must be kept in mind that I.G. is at the same time a national cartel in its broadest sense as well as the greatest of all international cartels.

The Armistice had hardly been signed before this multiple trust undertook to expand its capital and plant. A dispatch in the *New York Times* of December 1, 1919, from its Berlin correspondent, stated:

The firms composing the German dye trust have decided to increase their capital to an extent without parallel, I believe, in the history of German industry. The trust, which consists of three great and four minor concerns in the industry, valued at, roughly, 15,000,000,000 marks, is extending for two reasons: It is determined to reassert German supremacy in the dye industry; in the second place, there is the question of nitrate, so important for the agricultural life of the country.

The trust is aiming at making the fatherland independent of foreign supplies and to increase production so that it will be able to export large quantities.

* * *

With this vastly increased capital the trust will at the earliest moment begin a vigorous onslaught in the markets of the world.

The value of the mark at the time of this dispatch, while still theoretically at its pre-war level, was perhaps equal to about 3¢ in American money. On this basis, a value of 15,000,000,000 marks would be roughly equivalent to \$750,000,000. In 1926 the nominal capitalization of the new I.G. was placed at some 800,000,000 marks, and in 1929, I.G.'s annual report estimated its capitalization at more than 1,000,000,000 marks. These figures in themselves would not entitle I.G. to the status and prestige which it occupies among the financial titans of industry. There is, however, a major qualification to such estimates. It is customary among German cartels to

underestimate, rather than overestimate, capital assets in order to conceal their real size. It is probable that the real capital assets of I.G. as they stood at the outbreak of war in 1939 were only slightly below those of Standard Oil, and were certainly greater than the resources of any other concern in the same industry.*

Within Germany, the plants and properties of I.G. are scattered from one end of the country to the other. I.G.'s plants are located in those very cities which have been among the primary bombing objectives of the Royal Air Force, and in all probability provide the specific targets for such raids. The names of many of the towns in which the principal I.G. plants are located will therefore strike a familiar note to those who follow the headlines.† Although there is a good deal of geographic concentration of the I.G. plants, they are sufficiently decentralized from both an economic and military standpoint to make the job of bombing them difficult and dangerous.

I.G.'s holdings in German and European industry have, of course, been enormously increased by military conquest, and by the unctuously legal means to which they have adhered in absorbing conquered industry. An accurate, complete catalog of I.G.'s wholly and partially owned subsidiaries cannot be given, because only

* Liefmann in "Cartels, Concerns, and Trusts," places I.G.'s assets ahead of the Royal Dutch Shell Oil interests.

† See list in Appendix.

the I.G. Sekretariat could provide such a list. Various experts have called the roll, but never with final assurance. With similar reservations, the firms which I.G. is known to own, or control, are set forth in the notes below. In scanning this list, it becomes clear that I.G. is the industrial ruler of Germany. Its non-German interests bulk almost as large.

The fields of operation of I. G. Farben are so broad, the array of its products so vast, that the best-qualified investigators cannot name them all. "Dye Industry" is a misnomer. It is true, of course, that I.G. grew out of the dye industry, but in a larger sense, its functions are as unlimited as the scientific application of physics and chemistry to raw materials. In each of the broad areas designated as a field of production there are nearly always a large number of separate products and processes involved. In some cases, such as that of coal tar dye-stuffs, there are tens of thousands of different crude, intermediate, and finished materials which fall within the general class.

There is a quality of Faustian alchemy in the rapidity with which any development in one branch of the chemical or metallurgical industries transforms or affects all other aspects of the field. I.G. has not only taken advantage of the illimitable permutations of the chemical industry itself, but has used the forces of science to build what is probably the world's greatest

system of industrial domination. Even if I.G. were confined exclusively to the chemical industry, which it is not, the enormous possibilities within that sphere would kindle the fantasy of any writer of weird tales or horror stories. More important, however, is the fact that throughout its entire domain I.G. always has the power of choice to make products or to use processes which can benefit or injure mankind. This duality of the industry is graphically illustrated in the testimony given by Captain O. E. Roberts, Chief of the Industrial Relations Section, Chemical Warfare Service, United States Army, before the Judiciary Committee of the United States Senate in 1922. Speaking of the chemical industry in general, Captain Roberts said:

It is a revelation to most people to see the variety of products which this industry produces, and the fact that we may make a delightful violet perfume, or a wonderful dye, or an extremely effective medicine from such a deadly war gas as phosgene, always stirs one's imagination.

The possibilities of this industry, which may include any of the several hundred thousand known organic chemicals or of the millions which are figured as possibilities, are enough to stir anyone's imagination.

In a speech on July 9, 1921, before the House of Representatives, Honorable Caleb R. Layton of Delaware, describing the development of the chemical indus-

try with regard to the increasing dependence of medicine on chemotherapy, said:

I venture the prophecy at this point that the time will come, and is not far distant, when the physician will be enabled to select out of a single large group of synthetical medicines possessing substantially one chief characteristic for his therapeutical use with the same meticulous facility that the essayist employs who chooses the proper synonym for the expression of his thought.

When it is recalled that I.G. produces synthetic medicines, vitamins, hormones, serums, and specifics, some of which are not even known in other countries, it is understandable that its success in opening up new markets throughout the world and in penetrating the markets of others is in part attributable to its consistent policy of trying to lead the field. Knowledge, to I.G., means power.

I.G.'s physical plant includes mines, its own railroads which connect with the state-owned lines, and large tracts of property around its plants and in various German cities. The total number of employees of I.G. and its direct subsidiaries is estimated at about 350,000. It is worth recording that I.G.'s labor policies are paternalistic and, for the most part, predicated upon the native docility and tractability of the German worker. Many of I.G.'s employees live in what, in the United States, would be called "company towns," and histori-

cally, it has been part of I.G.'s policy to adopt the type of "social reform" initiated by Bismarck. When the National Socialist Workers' Party seized the government and incorporated all German labor into an enormous company union with the state as ultimate employer, I.G.'s workers were, of course, included. In fact, I.G. personnel made up one of the first "Strength-Through-Joy" units.

The technical organization of I.G. is an intriguing topic, but it describes only corporate superstructure. I.G. as another "big business" would have little novelty. But I.G. as a politico-economic entity, the embodiment of cameralist Germany, has the immediate importance of an additional army or a fleet. Again, no demon-theory is necessary in interpreting I.G.'s history from 1919 to 1939. I.G. is supervised by a "doctorate" whose ranks include today, as in its beginning, the scientific aristocracy of Germany. Nearly all of I.G.'s directors are doctors of chemistry, physics, engineering, or economics. For personnel, I.G. has been able to draw upon a populace which has been trained for generations in applied science. Herbert Hoover drew attention to the fact that there were two and one-half times the number of research workers in Germany that were engaged in comparable callings in the United States in 1925.

The sequence of events must be considered in recounting the part which I.G. played in German rearmament in the Inter-War period, beginning years before

Hitler appeared. The World War had shown up certain weak spots in the German armor. Continuing the lines of research begun before 1914 was not enough. The difficult task of rearming would be futile, unless any new war could be started with a wider margin of advantage than in 1914. This requisite superiority required that Germany become an absolute autarchy, able to supply *all* of its own domestic wants. Self-sufficiency, if complete, could withstand indefinite blockade.

On this score, I.G.'s intentions from 1919 onward are easily determined, and their fulfillment can be traced step by step. In addition to self-containment, however, Germany needed assurances that in her second gamble against the world, her former enemies would feel the grip of technological inferiority with even greater agony. I.G., whether it foresaw precisely the time and manner of the present war or not, used old and new methods to create this differential. Patents were applied for and obtained "en masse," in every country having a patent system, but largely in Germany, England, and the United States. But patents were the oldest and the least of I.G.'s tourniquets on the economic vigor of Germany's likely antagonists. The improved cartel device was used both to invade and to occupy strategic sectors in the economies of the then disunited nations. The cartel was I.G.'s formula for conquest.

Here, it is helpful to pass in brief review the specific utility of I.G. to the rebirth of German military prow-

ess. I.G. had produced synthetic rubber during the World War, in relatively small amounts, but its quantity was insufficient and its quality unsatisfactory. I.G. therefore worked incessantly to make synthetic rubber on a large scale. The famous Buna rubbers were the reward of these experiments. The Bunas are made from petroleum.* Germany had little oil. I.G. hydrogenated coal into oil, and at a single stroke made possible the mechanization of the Reichswehr. The German Army at this very moment travels in tanks and trucks propelled by I.G.'s synthetic fuels, and shod with Buna rubber.

The production of new alloys and light metals by I.G. and its research colleagues, Krupp and Siemens-Halske, are the reason for the uncanny speed and dimensions of German rearmament. New aluminum and magnesium plants, and improved processes of production, largely I.G.'s own, were ready when the time came to fabricate planes. Beryllium, tungsten carbide, and new steels were forged to be used in armor plate, shell tips, and machine tools. Since all metals are precious in Germany, I.G. produced new plastics to take their place in consumer goods, and replenish many munitions supplies.

From the most universal raw material of the temperate zone—wood—I.G. produced substitutes for

* The essential ingredient of the Bunas is butadiene, a refinery by-product. This component can also be made from alcohol or coal.

metals, cotton, wool, explosives, fuel for vehicles, food-stuffs, medicines, and dyes. A whole new industry was developed from the chemistry of wood—a branch of science totally neglected in the United States.

Under the pressure of Allied blockade, the German disease rate had risen sharply toward the end of the World War. I.G. compounded vitamins and sulphur drugs to remove this danger in the future. If Germany was to regain her lost colonies, geopolitical analysis indicated that fighting would have to take place in the tropics. The quinine of Java was far away, and German troops would risk jungle fevers. I.G.'s answer to this prospect was atabrine—better than natural quinine for the quick cure of a sick soldier.

Lest it be thought that the relation between I.G.'s research and German aspirations is coincidental, the story of "Bayer 205" must be told. The number 205, like 606, stands at the pinnacle of a tireless series of experiments. Bayer 205 is a complex synthetic hydrocarbon. It was first announced by I.G. in 1920 that Bayer 205, rechristened "Germanin," was a cure for the dread sleeping sickness which the tsetse fly scattered over Africa. Sleeping sickness prevented the complete exploitation of Africa's wealth by the white race.

By indirect channels, I.G. made an offer to the British Government—the secret of Germanin in exchange for the return of Germany's lost colonies. I.G.'s adroit-

ness is evident in the report published in the British Medical Journal in 1922:

A curious illustration of the German desire, not unnatural in itself, to regain the tropical colonies lost by the folly of the rulers of the German Empire, is afforded by a discussion which took place at a meeting of the German Association of Tropical Medicine at Hamburg. The *Times* correspondent in Hamburg reports that one of the speakers said that "Bayer 205 is the key to tropical Africa, and consequently the key to all the colonies. The German Government must, therefore, be required to safeguard this discovery for Germany. Its value is such that any privilege of a share in it granted to other nations must be made conditional upon the restoration to Germany of her colonial empire."¹⁴

While no action by the British Government was ever made public, and no official explanation ever given, I.G.'s "bargain" was obviously not accepted. As it later turned out, Germanin was not so effective in human sleeping sickness as in mice or in test-tubes charged with the causal parasite. But the motif of the episode ties into and connects the pattern and purpose of I.G. research. Political control of Africa could not be bought, but I.G. could still get economic colonies not only in Africa, but elsewhere.

Whatever Germany needed, and modern science could make, I.G. obtained for Germany, and tried to keep from others. The combined effect of I.G. dis-

covery and I.G. cartel restriction on the development of other countries has only to be set forth to assume its true proportions. Every time some government official or industrial executive speaks of a scarcity of chemicals or metals, the chances are abundant that somewhere along the line there was an international cartel, and that the letters I.G. are inscribed on a supporting contract.

Although the internal organization of I.G. is an exciting subject, it is in the sphere of international industry that I.G.'s policies and practices assume their most sinister mask. The list of affiliations, associations, contractual agreements, and international cartels in which I.G. is either the promoter or at least a principal party reads like a bluebook of world industry. I.G. had cartel agreements with Standard Oil of New Jersey, with Aluminum Company of America, with Dow Chemical Company, with E. I. duPont de Nemours, with Monsanto Chemical Company, with Pennsylvania Salt Co., with Rohm & Haas, with Plaskon Corporation, with Hercules Powder Company, with Remington Arms, with the Unyte Company, and with numerous other American companies which will be referred to later. I.G.'s cartel agreements with Imperial Chemical Industries, with Norwegian, Dutch, French, Belgian, Italian, Spanish, and Polish concerns were, until the outbreak of the war, a true society of nations, industrially speaking.

In the Far East, I.G. was one of the principal spon-

sors of the Japanese chemical industry, forming an Axis which existed long before its political counterpart. It is interesting to note, however, that as early as the first World War, products were sold in the Australian market which bore the legend "Made in Germany," followed by a Japanese trademark.

Even greater weight must be attached to I.G.'s policies in this war than in the last. I.G.'s plans for post-war reconstruction are already provided for in its agreements with non-German concerns. Reports from France and the other occupied countries of Europe indicate that I.G.'s own staff has followed in the wake of Hitler's armies for the purpose of acquiring outright ownership of the entire European chemical industry. Inasmuch as superficially legal methods are used by I.G. in its acquisitions, as in the case of the Etablissement Kuhlmann, the French chemical company, I.G. apparently hopes to win its own war even though Hitler loses. In the case of American industry, I.G.'s foresight provided for a *modus vivendi* during the war and a settlement of claims afterward. American industry has been victimized twice. Will it be victimized in the future by the resumption of the same enticing "collaboration" in joint world-monopoly or by the "settlements" anticipated by I.G.?

4. THE FROZEN RAGE ACROSS THE RHINE

IT would be folly to indict an entire people. People in a nation, however, are part of an organic whole, whose way of life is ordained by the will of its ruling class. In Germany, this ruling class for centuries has consisted primarily of Prussian Junkers or those who would be like them. The Prussian feudal warriors have never been unsaddled by social change. Tacitus had recorded in the Roman era the ferocity of the Teuton. Heine, centuries later, warned the French of the "beast" that dwelled in the Prussian soul.

Since the days of Frederick William I, Prussian exaltation of military prowess has made German statecraft a succession of military plans. World domination is the pole, and blood and iron the compass, by which the German nation has been guided.

Is this to say that the people who have given birth to so many great musicians, poets, and scholars can be condemned? No. If the German people are to blame, as people, it is because they have failed for centuries to free themselves from the shackles of a small and ruthless group, whose traditions and ideas revolve about

absolute force. Mirabeau once exclaimed, "War is the national industry of Prussia!" Because Prussia won the sceptre of rule in the German nation, Prussianism became dominant in German Kultur, and tainted all it touched. The writings of Prussianized thinkers are saturated with the idolatry of power, and glorification of war as the way to German world dominion. From Friedrich List, to Heinrich von Treitschke, to Oswald Spengler, to Adolf Hitler, the belief has been proclaimed that Germany, by and with the virtue of the sword, should gain the world. In the pursuit of such ends, nations, like men, can sin against and lose the spirit of humanity.

The Prussian "Weltanschauung" of political and economic world hegemony is the well-spring from which both Hohenzollern Imperialism and National Socialism flow. This outlook envisages an administered economy, planned and ordered by the State as an adjunct to "Machtpolitik." Succinctly stated, ". . . there has been a certain logical sequence in Prussian-German history. It was and is the expression of cameralism, the peculiar German type of mercantilism."¹

Werner Bruck, former Assistant to Walther Rathenau * in the German War Office, and later a department head in the Ministry of Economic Affairs in the Weimar Republic, says of Prussian militarism:

* Head of the German Economic War Ministry in the first World War.

This militarism has rightly been called the cement that bound the whole structure of society into an entity. It was, and still is, an outstanding expression of the national efficiency of the Supreme State. In the greatest degree produced by constant drill, everything had to be as on the parade-ground, where thousands of soldiers monotonously repeated the same movement. This spirit of prompt obedience extended from the army to industrial life: the local units responded to the least word from headquarters. The giant industrial plants, large savings banks, local branches of the social democratic party, and even the trade unions, functioned through men of the type of captains or non-commissioned officers.²

Of the commercial "arrivistes" who came into the picture with industry, Bruck says:

. . . these business men left no stone unturned, in business and society, to bring themselves into the machine. They joined noble cavalry regiments and acquired landed property. This union between the powerful old nobility and these upstarts, anxious for assimilation into its ranks, stood actually and morally in the way of every democratic and socialist movement.³

Bruck cites Friedrich Naumann, whose National Socialism, vintage of 1895, sanctified militarism as the foundation of order, without which the State could not exist. Bruck's opinion of the Weimar Reich deserves serious consideration. He points out that the war econ-

omy continued to operate after the Armistice. The thin veneer of democracy imposed on this war economy by the Versailles Treaty did not alter either the locus of real rule or its concentration in the Junker military and industrial oligarchy. As for the honest and sincere men, some now dead, the rest scattered to the four corners of the earth, living as refugees, who tried to make democracy work in a military socialist state, the whole group

. . . was doomed to failure from the first by its lack of power.

. . . No doubt, in many groups extending from the middle classes to the ranks of the Social Democratic Party, a feeling for democracy existed. But among the population in general such feeling was very weak. The average German received this suddenly-acquired individual liberty with indifference.⁴

Von Moellendorff, in the War Office until 1918, continued as permanent secretary for the Economics Ministry under the Weimar regime. Von Moellendorff, the coiner of the term "Planwirtschaft" (economic planning), "succeeded in anchoring his ideas . . . in the Constitution of the Weimar Reich." These ideas followed the ". . . administration of the economic system of the War period." Von Moellendorff was a principal promoter of the plan of self-sufficiency as an economic weapon. Though Von Moellendorff departed from government, later to become a director of I.G., his ideas

remained. The cartels grew stronger in inflation. The High Command bided its time, until the economic machine was again ready to do its bidding. As Bruck concludes:

The historian's interest is attracted by the fact that the Third Reich followed directly in its social and economic system the model given by the Weimar Reich. . . .⁵

I.G. and the Weimar Republic

The relationship between I.G. and the Weimar Republic is that of villain and victim, or co-conspirators, depending upon whether we accept the sincerity of the German Government from 1919 to 1933. I.G. executives commonly held cabinet posts, especially after Hindenburg's election. It is acknowledged without question that both German industry and the German army re-armed throughout the life of the ill-fated Republic. Refugee scholars have maintained that the failure of the Republic was directly attributable to these aims of industry and the army. Franz Neumann, for example, says of the Weimar Government that:

. . . it did not see that the central problem was the imperialism of German monopoly capital becoming ever more urgent with the continued growth of the process of monopolization.⁶

The lines of evidence converge to the conclusion that even if the constitutional German Government was

guiltless, it made no real effort to halt the training of troops in secret, the manufacture and export of arms, or the gobbling up of all key enterprises by I.G. or its followers. By 1924 Colonel William Taylor, duPont's Paris agent, could write to his company that "The European monopoly in military material [is] passing slowly into German hands."⁷

Article 170 of the Treaty of Versailles specifically prohibited German export or import of armaments or munitions. By 1925 it was known that:

. . . in open violation of the Treaty of Versailles the Germans shipped munitions to the Argentines . . . Rottweil [I.G.'s wholly owned subsidiary] still makes and sells excellent military powders, and German factories for munitions have been built or openly offered to build in Spain, Argentina, Mexico, etc.⁸

Although these violations of the disarmament clauses of the peace treaty were known to the State departments of Great Britain and the United States, no action was taken. The Imperial Chemical Industries, formerly the British Nobel company, refrained from any protest because of its cartel agreements with I.G. As Sir Harry McGowan, the head of Imperial Chemical Industries, Ltd., stated, the British Chemical industry could not "achieve technical success without the help of the Germans."⁹ What would Perkin have said to this?

1926—not 1933—was the year which really foreshadowed this generation's "rendezvous with destiny."

In 1926 the German army formed an Economic High Command. The truth of this assertion is independently documented from many sources, and Robert Strausz-Hupé has stated it pithily. In his words, the Economic High Command had as its express purpose:

. . . studying the deficiencies of German economy and laying plans for transforming it into Wehrwirtschaft. . . . Rapid conquests alone could provide new resources before Germany's reserves, accumulated by barter, ruthless rationing, and synthetic chemistry, had been exhausted in the initial war effort. These new resources could then be poured into the war machine rolling on to ever larger territorial conquests, and as long as it kept on rolling, the economy of greater space need never fear a crisis.¹⁰

The liaison between I.G. and the High Command was maintained by direct and indirect means. I.G.'s policies and industrial relationships were charted thereafter as part of a "ruse de guerre." I.G. did rearm the German economy. The High Command took care of the training of troops in the Black Reichswehr, and in "private" volunteer groups. Pilots were trained in gliders—the phantom air force. Infantry was drilled in hiking clubs. The Reichswehr was limited to 100,000 men, but each name on its rolls stood for as many as 30 men, each of whom received training during the twelve-year period of enlistment. Colonel Taylor of duPont in 1932 reported:

. . . One of the motives back of the French proposal, that all countries should establish a conscription is to upset the present German system of handling their Reichswehr. The Reichswehr is limited to 100,000 men of 12 years enlistment, and it would appear reasonable to suppose that there should be at present a number of soldiers around the age of 33 or 34; the fact is that when one meets a soldier of the Reichswehr he is a young man in the early twenties, and it is pretty well accepted that there are several men available under the same name and hence training much larger number of men than permitted.¹¹

The Weimar government could not suppress these activities. Instead, it conducted several hundred treason trials in secret against journalists and workmen who revealed the truth beneath the surface. As Dr. H. C. Engelbrecht and F. C. Hanighen state:

. . . It would seem then that, despite the Versailles treaty, Germany is again a manufacturer and exporter of arms.

This inference is confirmed by various incidents from the last ten years. There was the Bullerjahn case of 1925. On December 11, 1925, Walter Bullerjahn was sentenced to 15 years in prison for "treason." The trial was held in secret and the public was excluded. Both the crime with which the condemned was charged and the name of the accuser were kept deep and dark secrets. After years of agitation by Dr. Paul Levi and the League for Human Rights, the facts were finally disclosed. The accuser was Paul von Gontard, general director of the Berlin-Karlsruhe In-

dustriewerke, the same man who had used the French press in 1907 in order to increase his machine gun business. Gontard had been establishing secret arsenals, contrary to treaty provisions, and this fact was discovered by the Allies. Gontard disliked Bullerjahn and had had serious disagreements with him. In order to get rid of him he charged him with revealing to the Allies the fact that Gontard was secretly arming Germany. This was termed "treason" by the court and Bullerjahn was condemned, although not a shred of evidence was ever produced to show his connection with the Allies. The exposure of the facts in the case finally brought the release of Bullerjahn.

* * *

A little later Carl von Ossietzky, the courageous editor of the *Weltbuehne*, was convicted by a German court of "treason," because he had revealed military secrets in his journal. The secrets he had published were closely related to the secret rearming of Germany contrary to treaty provisions.

There is also some evidence that Germany is importing arms and munitions from other countries. In a confidential report of the exports of Skoda for 1930 and 1931, classified by countries, Germany appears as importer of comparatively large amounts of rifles, portable firearms, aero engines, nitrocellulose, dynamite, and other explosives.

All of this occurred in pre-Hitler Germany.¹²

I.G., along with Krupp and Thyssen (who later regretted his complicity with the Nazis), financed Hit-

ler. In a memorandum dated March 22, 1932—a year before Hitler took over—from the files of the Foreign Relations Department of duPont, J. K. Jenney, now the assistant head of this Department, wrote to W. R. Swint, his chief:

It is a matter of common gossip in Germany that I.G. is financing Hitler. Other German firms who are also supposed to be doing so are Krupp and Thiessen. How much truth there is in this gossip we are unable to state, but there seems to be no doubt whatever that Dr. Schmitz [director-general of I.G.] is at least personally a large contributor to the Nazi Party.¹³

When the Nazis did take over, I.G. became in effect the business partner of the Hitler Government. Ivy Lee, the late American publicist, testified before the Dickstein Committee in 1934 that he was hired as a publicity agent in this country for the German Government by I.G. and paid by Dr. Schmitz in person. The propaganda which Lee spread included both Nazi literature and I.G.'s self-glorifying handouts. Actually there was little distinction between the two.

The War Economy of 1914 became the Cartel Economy of Weimar. Impregnated as it was by the smouldering fetish of the Versailles Treaty, the militaristic imagination of the people was kept at white heat by the "invisible government" of the Junkers in Army and Industry. When the necessary backlog of capacity

and invention had been accumulated, the torch was placed. Hitler was chosen to light it.

Thorstein Veblen stressed, in "Imperial Germany and the Industrial Revolution," the divergence between the *laissez-faire* of England and the United States and the authoritarian habits of thought traditionally associated with the Junker-mind. During the industrialization of Germany in the latter nineteenth century, economic liberalism was no more than an interregnum episode. Since the time of Bismarck, the German Government has sponsored industrial cartels because they made production lines goose-step in unison. Germany became "the classic land of the cartel."

Geopolitics has been called "the systematic struggle for space and power," with world-mastery its goal. Years prior to the World War, geopolitics was already a highly developed study in German universities and military circles. Geopolitics is a name for Prussian desires, whose military culmination must be a Global War.

In the folklore of future ages the Germans will be classed as the warlike race of modern times. No devil-theory of history is implied in this assertion, for the motives and acts of Germans are products of *Kultur*. It was, after all, a neglected American military genius who most mordantly defined the spirit of German militarism. Homer Lea, writing in 1912, prophesied the future in startling detail, and described the German nation as:

. . . a military power in which neither theories nor sophistry find a place, but where the intentness of its aims knows no discouragement, its progress no diversion of the terribleness of its energy nor fatigue. The movement of such a nation resembles that of fate in the certitude of its progression. The noise of its approach tallies the destiny of many states.¹⁴

5. PREVIEW

“THE remembrance of things past” is more than a Proustian image. Not as hindsight, but as hard-won knowledge does the narrative of history have meaning. For this reason it is necessary to pass in review the pattern of events in the United States in the years 1914-18, and in particular the circumstances attending the entry of the United States into war in 1917. A comparison between the experiences of the United States in the World War and in the Global War establishes parallels which cannot be considered accidental. They were and are the product of calculated military design. The German attack by cartels in 1914 had the same purposes, executed in much the same manner, as the attack on our economy today. The mistakes of public policy which were made at that time and in the years following the Armistice provide a significant commentary which has value for the future.

In many respects, the war effort of this country in 1917 was even more severely handicapped than at the present time, because our industrial structure did not have the resilience which technological advances during

the past twenty years have given us, and because we were at war before any countermeasures could be set in motion. It is to provide a frame of reference for present and future strategy and to seek the causes of present conditions that the preview of cartel activities which was given to us in 1914 is outlined.

The most serious shortages in the United States at the time of the World War resulting from the action of German cartels were those of dyestuffs, nitrates and potash, medicines, military optical goods, surgical instruments, heavy ordnance, and radio and electrical equipment.

The first impact of war in 1914 was felt by the dyestuffs and textiles industries of the United States. Because "selective attack" by I.G. had aborted any effort to establish an American dyestuffs industry, we were entirely without the facilities or the know-how to meet the situation. Our total dyestuffs industry consisted of five very small firms employing collectively less than the entire number at work in a single I.G. laboratory. I.G. produced four-fifths of the world's total output of synthetic dyes, and provided more than 90% of the dyestuffs which this country consumed. The British blockade and the embargo placed by the German Government on exports of dyestuffs and medicines threatened the steady operation of American industrial life. In March 1916 the German Ambassador, Baron von Bernstorff, sent the following cablegram to Berlin:

It is reported to me by Hossenfelder [the German Consul-General in New York] that the stock of dyes in this country is so small that by a German embargo about 4,000,000 American workmen might be thrown out of employment.

On his part, Hossenfelder had written to Berlin:

Neither through money nor the granting of credit nor by any other means can that critical situation be relieved which has been called forth by the removal of certain articles which are obtainable only in Germany. These articles are chiefly potash, chemicals, and dyestuffs . . . to enumerate the industries which are suffering from the scarcity of German chemicals would lead too far. I may, however, mention that the cry for help which comes from the world of physicians is becoming louder and louder and more insistent.

The country, however, is being hit hardest by the lack of dyestuffs, which makes itself felt more and more every day. . . . In estimating the effect which will be produced by cutting off the importation of potash, chemicals, and dyestuffs, it should be taken into consideration that the circle of persons affected is very extraordinarily large. Through the lack of dyestuffs alone not only is a whole list of important industries . . . gradually made lame, but for the great public living becomes more expensive. . . . We are here unquestionably face to face with conditions which are without parallel in the past.¹

The reasons for the strength of Germany and the weakness of America in the dyestuffs and organic chem-

ical industries are not far to seek. By 1914 I.G. had achieved not only superiority but a world monopoly in the production of dyestuffs. The commercial practices and patent policies of I.G. were deliberately intended to prevent, so far as possible, the development of coal tar chemical industries in France, Great Britain, or the United States. While patents and patent privileges were the primary weapons which I.G. used in its assiduous effort to retain its supremacy, it did not allow non-German patents to block it at any point. The marketing tactics were equally effective: by dumping and by singling out particular products for cutthroat competition I.G. precluded any possibility that American or English firms could successfully enter the industry.

Where necessary, I.G. resorted to full-line forcing of its dyestuffs, by threatening to shut off the supply of any manufacturer who tried to circumvent its control. Bribery was a recognized practice of I.G., and a special fund existed for the purpose of corrupting opposition which could not otherwise be overcome. Organized propaganda was supported to discourage native initiative, and a doctrine of German invincibility in the organic chemical industry was pounded by every available means into the consciousness of both the United States and England. Belief in this notion of the incomparable ingenuity of Germany in the chemical field has been weakened by subsequent developments, and will not stand logical analysis, but it is still invoked to justify

cartel agreements which cannot otherwise be defended. The secret of German industrial invincibility was not inherent genius, but singleness of purpose and an indomitable will to conquest.

Hossenfelder, in the cable quoted above, refers to the cry for help which came from American physicians. The shortages of medicine were perhaps even more critical than the lack of dyestuffs. All salvarsan used in the United States prior to the World War had been imported from Germany, and the stoppage of imports created so grave a situation that, even before we declared war, attempts were made to work the American patent owned by I.G. It was found that "the patent protects the product, but does not reveal the method." This use of "bogus" patents, containing nothing of the know-how, by German interests to further their grip on our economy was a settled policy throughout German industry. In this connection Sir William Pope stated in 1917:

In fact, some German patents are drawn up for the purpose of discouraging investigation by more practical methods; thus, anyone who attempted to repeat the method for manufacturing a dyestuff protected by Salzmann and Kruger in the German patent No. 12096 *would be pretty certain to kill himself in the operation.*²

This device should be kept in mind when the claim is advanced that Germany "shared" her knowledge with other countries.

In the case of salvarsan, this country suffered throughout the war effects which intensive research could not mitigate. The drug prepared according to the specifications contained in I.G.'s patent was so toxic that many fatalities in the Army and Navy and among the public resulted from its use. Salvarsan, the "healing arsenic," Ehrlich's "magic bullet," became as effective as a sixteen-inch shell from a Krupp cannon, and produced as many casualties. When it is realized that an estimated ten million persons in the United States were afflicted with syphilis at that time, and that the larger dispensaries administered an average of 2,000 injections per month, the magnitude of the problem can be understood. The cost in time, health, and money exacted from us by German patent control in this instance was both incalculable and irreparable.

The shortage of salvarsan was not the only blow at our national health. The scarcity of novocaine resulted in a reversion in American surgery to "Bulgarian operations," executed without benefit of anaesthesia. This single lack, in the opinion of medical men, "threw us back fifty years in civilization" at a time when our need was more acute than ever before in our history.

In the case of luminal, a synthetic drug used to prevent epileptic seizures, the loss could not be made good, for its formula eluded us.

Even before we actively sided with the Allies, German economic warfare in this country was carried on

through the agencies of the chemical, metal, and electrical cartels controlled by German interests. Planes which we were manufacturing for the Allies were held up fifteen months by the deceptive tactics of the Bosch magneto interests, and it was not until our own declaration of war that any measures could be taken against the Bosch company.

An even more insidious aspect of the patent agreements entered into between German and American concerns prior to the World War was the provision for an exchange of information on technological improvements and on the scope of their application. German companies, then as now, conducted the most comprehensive industrial intelligence service in the world. Although patent agreements were the principal means of obtaining such information, financial and commercial agreements were also channels by which vital knowledge of American industrial organization flowed to Germany.

Probably one of the most lurid affairs during the whole period of the war concerns Dr. Hugo Schweitzer, at that time president of the old Bayer Company in the United States. Dr. Schweitzer was an American citizen who became head of the German espionage service in America, known in the Secret Service in Berlin as "No. 963,192,637." Dr. Schweitzer was interned after America entered the war, but before that time was able to conduct a highly efficient system of industrial espionage and warfare. At one time he was able to corner the

American market in phenol, or carbolic acid, in order to prevent its transshipment to the Allies, and succeeded in achieving on the economic front a victory which was comparable to any gained by German arms in France. He was complimented by Dr. Albert, his superior, in the following language:

The breadth of high-mindedness with which you at that time immediately entered into the plan has borne fruit as follows: One and a half million pounds of carbolic acid have been kept from the Allies. Out of this one and a half million pounds of carbolic acid four and one-half million pounds of picric acid can be produced. This tremendous quantity of explosive stuffs has been withheld from the Allies by your contract. In order to give one an idea of this enormous quantity the following figures are of interest:

Four million five hundred thousand pounds equals 2,250 tons of explosives. A railroad freight car is loaded with 20 tons of explosives. The 2,250 tons would, therefore, fill 112 railway cars. A freight train with explosives consist chiefly of 40 freight cars, so that the 4,500,000 pounds of explosives would fill three railroad trains with 40 cars each.

Now one should picture to himself what a military coup would be accomplished by an army leader if he should succeed in destroying three railroad trains of forty cars, containing four and a half million pounds of explosives.

Of still greater and more beneficial effect is the support which you have afforded to the purchase of bromine. We have a well founded hope that, with

the exclusion of perhaps small quantities, we shall be in a position to buy up the total production of the country. Bromine, together with chloral, is used in making nitric gases, which are of such great importance in trench warfare. Without bromine these nitric gases are of slight effect; in connection with bromine, they are of terrible effect. Bromine is produced only in the United States and Germany. While, therefore, the material is on hand in satisfactory quantities for the Germans, the Allies are entirely dependent upon importation from America. [*Italics added*] ³

Dr. Schweitzer's position and the weight of his authority made both profound and prophetic an article he wrote during the first World War. At the time of Dr. Schweitzer's death Government agents searched his apartment. Among his effects was found an unpublished article entitled "The Chemists' War." In this remarkable document Dr. Schweitzer records the plans for self-sufficiency which were to precede German conquest. He says "Germany deprived of all imports by the seapower of England has been transformed into a self-supporting country by the chemists." Dr. Schweitzer relates that in 1910 large-scale experiments had been undertaken by the Institute for the Fermentation Industry in Berlin, looking toward the solution of the protein problem which was to plague Germany in the following war. He describes the way in which Germany had freed herself from nitrate imports, a discovery which, in his opinion, would some day produce a universal fertilizer.

"When English blockade threatened to starve the women and children of the Empire" fourteen substitutes were found for spinach, five for salads, and nine for foods rich in starch.

Dr. Schweitzer in this article raised the possibility that the cotton farmers of the South would some day be displaced by German production of textile fibre from wood. In ominous words he says:

All these endeavors to substitute cotton may appear ridiculous to us who have been brought up with the idea that "Cotton is King," and that we have been destined by fate to supply this fiber to the civilized world. The farmers who cultivated the madder root and the planters who raised indigo were also inclined to jest when they were appraised of the fact that German chemists had succeeded in reproducing in the laboratories the dyes which their crops furnished, but when the manufactured materials drove the natural products from the markets and left the farmers and planters without a job, hilarity ceased. History may repeat itself and willow bark and nettle, or some other substitute raised on German soil may, in the near future, depose King Cotton. The German chemist has a duty to perform, and with his perseverance and application he does not shrink from any problem however difficult it might appear to outsiders.⁴

Dr. Schweitzer discourses (*in 1916!*) on synthetic rubber, aluminum, and magnesium as a means of increasing Germany's self-sufficiency. He says:

Next to steel and iron, aluminum and magnesium play a prominent part as substitutes for copper. It has been found that an aluminum-magnesium alloy possesses great advantage over the latter as an electrical conductor. Magnesium is said to be useful for many purposes for which aluminum is being employed today. This is a very important discovery, because Germany has enormous supplies of magnesium chloride, a by-product of the potash industry, which has been considered worthless up to now. *Two large factories, started during the war, are now producing magnesium.* [Italics added]⁵

Because of these developments in Germany, Schweitzer saw that, win or lose, "there will be a big rush for the Teutonic bandwagon and all the ideas of a nation boycott of the Germans, or of an ostracism of Germany's traders and manufacturers, will quickly vanish in thin air." And he adds:

That this new scientific achievement will prove of momentous importance appears from the fact that the great chemical works which supply the world with dyestuffs, synthetic remedies, photographic developers, artificial perfume, etc., have entered the field and have become important factors in the artificial fertilizer industry of Germany. The peace negotiations will undoubtedly culminate in the conclusion of commercial treaties between the nations. What an enormous power will be exercised by that nation when possessing such a universal fertilizer and practically world-wide monopoly of potash salts will have some-

thing to sell that every farmer in the civilized world absolutely requires.

Schweitzer's role in attacking us, and his understanding of the importance of German technological plans, were forewarnings of what was to happen 25 years later in the Global War.

Dyestuffs, drugs, and potash were by no means the only industries in which the German-controlled cartels or German-held patents were able to cripple our aid to the Allies and our own war production. Only the most strenuous efforts by Government and industry could overcome the shortages of military optical goods controlled by the Zeiss works of Jena, whose American partner, Bausch & Lomb, had not theretofore produced military optical glass.

In this highly specialized field, as in the instances of radio apparatus, ignition systems for engines, and extremely technical metallurgical processes, the Germans exercised control both through patents and through cartel agreements which divided fields of endeavor. In other instances, they exercised outright monopoly, bolstered primarily by patents, and completely prevented the establishment of a domestic industry in this country. Thus, for example, even the surgical instruments so necessary in time of war were largely covered by German patents, and in 1914 over 80% of the surgical instruments in this country were imported from Germany.

Nor did the penetration of German interests into our domestic industrial structure stop with the accessories of war. The German Krupp company had "a long line of patents covering ordnance in this country, the most important of which was the split trail for field guns, 77 and 155 millimeter guns which we adopted and used during the war." The increased demand for these highly strategic tools of military science and industrial techniques made even more acute the pressure originating in the preemption of these fields by German cartels. So great were our deficiencies and so drastic our need that before 1917 our War Department took and tried to use patents covering vital processes and products, in an attempt to set up American industries to meet our requirements. In doing so they risked whatever future liability for royalties or damages might have been demanded after the war, as the "Trading with the Enemy Act" was not adopted until some time later.

Following our entry into the World War and the establishment of an Alien Property Custodian, a total of some 12,300 patents owned by German interests was taken over by the United States Government. Of this number, approximately 5,000 pertained to various branches of the chemical, dyestuffs, pharmaceutical, munitions, and explosives industries. The balance, which were placed at the disposal of the War and Navy Departments, also related to military and industrial supplies. After the war a number of these patents were

placed in the custody of the Chemical Foundation, the rest remaining in the possession of the Army and the Navy.

Although the scarcity of dyestuffs and medicinals handicapped our conduct of war and enabled the Germans to produce and use poison gas almost a year before the Allies were in a position to retaliate, this situation was not the most crucial encountered by the United States. The problem of synthetic nitrogen in the years 1914-1918 corresponded precisely to the problem of synthetic rubber in 1942. Prior to 1914 the world's chief source of supply for nitrates was the Chilean fields. These compounds are the essential component of dynamite, T.N.T., and picric acid, the principal explosives of warfare.

About 1908, Professor Fritz Haber, with the full support and under the supervision of I.G. and the High Command, continued his initial experiments, begun in 1905, to make synthetic nitrogen for fertilizers and explosives. By 1913 a plant was erected at Oppau on the Rhine with 10,000 tons capacity. This was a signal event in the history of that era. Without it there would have been no war. Germany's diplomacy in the years immediately preceding the war was timed to correspond with the progress of research by which she intended to free herself from her dependence on imports of Chilean nitrates and to acquire her own source of fertilizers and explosives. Because her fleet could not command the sea

lanes, Germany knew that war with England meant blockade. Blockade in turn spelled disaster if she lacked the nitrates necessary in the manufacture of munitions and the maintenance of agricultural production. The zeal with which the problem was attacked, and the scale on which the first manufacture of synthetic nitrogen was undertaken, leave but one conclusion—Germany was preparing for the “Chemists’ War.” Germany had determined to make synthetic nitrogen, *and she had succeeded.*

What was the reverse of the shield? When war did come, the United States had no plants for the synthetic fixation of nitrogen. Our absolute dependence on the Chilean nitrate industry was emphasized in the annual report of the Chief of Ordnance of the United States Army in 1915. As it turned out, not only were we restricted to very limited supplies of nitrate from Chile, but it later developed that many of the Chilean companies were controlled by German interests.

In 1916 Congress appropriated several million dollars and appointed a committee of scientists to study the problem of manufacture of synthetic nitrogen, and as soon as we entered the war, the Nitrate Division of the War Department undertook an extensive construction program. Four large plants were started for the production of synthetic nitrogen and nitric acid.

There were about 250 United States patents pertaining to nitrate fixation, all owned by German companies.

When these patents became subject to license under wartime legislation, an attempt was made to apply them. Nitrate Plant Number One was built at Sheffield, Alabama, at a cost of nearly thirteen million dollars. The anticipated capacity was 9,000 tons of ammonia and 14,000 tons of nitric acid per year. This expenditure of time, labor, and money was in vain. The German patents had failed to disclose the crux of the process, namely, the composition and preparation of the catalyst required to operate the method successfully. The United States remained dependent during the war for nitrates on the trickle of imports from Chile, which had to run the gauntlet of German submarines.

There were legal issues and intricate administrative problems met by the Government after the establishment of an Alien Property Custodian. The creation of the Chemical Foundation and the litigation which later occurred between the Foundation and the Government (terminating in three decisions upholding the creation of the Foundation and its custody of chemical patents) have only historical value. It should be noted, however, that, although the principal purpose in the establishment of the Foundation was the prevention of a recurrent subordination of the American chemical industry to the German trusts, the program of the Government consisted largely of improvisations. For this reason the measures adopted did not take into account the contingencies which were to arise after the cessation of hostili-

ties, contingencies having their source in the militant nature of German industry. It was realized at the time, however, that the future might witness a renewal of the struggle with the German cartels or, what was worse, a reestablishment of their dominating interests in critical spheres of world economy.

One man, at least, saw through the German plans. Francis P. Garvan, head of the Chemical Foundation, understood the tactics and objectives of the cartels, and fought a lonely battle against them. Knowing that there could be no disarmament while the German cartels continued to function, Garvan sought to build America's chemical power. In his words:

. . . we have learned to know that this was an industrial war, brought on by industrial Germany in her lust-made haste to capture the markets of the world. Industrial Germany, in its arrogance and pride, preferred the formidable hazard of battle to the progressive and sure infiltration which within ten or twenty years might well have given her the world domination she sought from complacent and unthinking peoples. Industrial Germany was in control of imperial Germany; industrial Germany sympathized and participated in the preparation for this war; industrial Germany waged this war; and industrial Germany was the first to see defeat and forced the military peace, in order that, with her industrial equipment intact, she might continue that same war by intensified and concentrated economic measures. It was Germany's chemical supremacy that gave her confidence

in her avaricious dream of world empire; it was Germany's chemical supremacy that enabled her to wage four years of pitiless warfare; and it is Germany's chemical supremacy upon which she relies to maintain the war, and for that supremacy she pays homage to her dye industry and counts upon that dye industry to maintain it.⁹

6. DU PONT

"YOU . . . are in a position to talk directly with a group . . . that controls a larger share of industry through common stock holdings than any other group in the United States. When I say this I mean that I believe there is no group, including the Rockefellers, the Morgans, the Mellons, or anyone else, that begins to control and be responsible for as much, industrially, as the duPont Company."¹ This estimate of the position of the duPont family in American economic life is set forth in a letter written in 1934 by John J. Raskob to a director of one of the duPont companies. Mr. Raskob's opinion is especially noteworthy, not only because of his own eminence in political and economic affairs, but because of his intimate acquaintance with duPont interests.

In any assessment of the military and industrial strength of the United States, the logical starting point is the firm of duPont de Nemours. Heaped with the scorn and abuse of pacifists, labelled as Merchants of Death, the duPont corporation is the largest chemical arsenal of this country. Since 1802 duPont powder mills

have been the major source of military explosives in all the wars we have fought. During the World War, duPont supplied not only the needs of the United States, but 40% of all explosives used by the Allies.

The "men of good will," honest in their convictions, who attacked duPont as a munitions maker, were more than mistaken. Such attacks were based on an unreal and visionary conception of the tragic evolution of history. Had they realized that Germany was planning to plunge the world into another war, the sincerest believers in peace would have demanded that duPont continue its historic role. Not duPont's production of munitions, but the monopoly—pattern of the American chemical industry—should have been the target. In retreat, duPont was pressed to withdraw more and more from munitions to peaceful pursuits.

Like other American industrialists, duPont believed far too much in normalcy as the principle of good business. Restriction of output, fixing of prices, and the formation of cartel agreements which inhibited the full maturing of technical change—these are the practices which most weakened the American chemical industry. The high-price low-output point of view, which, from fear of competition, sacrificed industrial for financial strength, has been the greatest curse of the democratic economies. From a military standpoint, this type of thinking not only helped Germany to outdistance the United States, Great Britain, and France, but hobbled

last-minute preparation. Even during war, such aversion to change, expansion, or possible competition has gone on, reducing the momentum of our charge, and keeping us on the defensive.

What goes to make up this towering financial and economic structure beyond the bare facts of corporate size and cartel relations is the story of one of America's dynastic families, the sketch of which would be a fitting subject for the pen of a Sinclair Lewis or a Theodore Dreiser. Our attention, however, is not so much concerned with the "who" as with the "what" and the "how" of industrial empires. The principles which may be learned from the biographies of corporations affect far more than the immediate owners, and have bearing upon the social and economic destiny of the American Republic.

E. I. duPont de Nemours & Co. is the oldest and largest of the "Big Four" * of the American chemical industry, and one of the staunchest of the "old line" of industrial baronies in this country. Its activities are centered primarily in the heavy and light chemical fields, but financially, duPont connections spread into almost every major branch of commerce from banking, automobiles, and mining, to railroads, aviation, communications, and insurance. Within its own particular fields of production, duPont is a vertical and horizontal com-

* The other three are Allied Chemical, Union Carbide and Carbon, and American Cyanamid.

bination of specialized departments, wholly owned subsidiaries, and largely controlled corporations, each of which operates as an autonomous unit with over-all ownership and authority concentrated at the top of the corporate structure in a single holding and operating company. The latter is the familial organization which coordinates the policies and functions of all duPont interests.

While the number, extent, and size of duPont's productive undertakings do not, on paper, equal those of I. G. Farben or of Imperial Chemical Industries of Great Britain, they are more varied than the comparable operations of any similar enterprise in the Western Hemisphere.

Internationally, duPont's status is of the same order of importance as its domestic position, with the difference that in the world economy it is more narrowly confined to industrial affiliations without the direct financial and personal relationships which it possesses in national economy. In certain basic types of chemical production, such as explosives, fertilizers, and dyestuffs, duPont's international rank places it among the foremost group of modern chemical combines. No world cartel in any important section of the industry could be formed or operated without the participation or tacit acceptance of duPont. Conversely, duPont's own control of its markets is largely dependent upon its membership in international cartels, especially that union

which it has established with the Imperial Chemical Industries.

As corporations go, duPont has had an interesting history, not only because of its place in American economy, but also as a case study in what might be called "industrial genetics." For it is as much the result of the personal traits and ability of the duPont family as it is of historical priority that the company early attained and maintained an unusual degree of prominence which carries over into political and social affairs.

High in any ranking of the industrial, social, and financial elite of America, the name of duPont has borne a distinction in the history of the United States seldom surpassed. The duPonts' connection with this country's development started illustriously, and has been developed by succeeding generations in a steady, at times romantic, but increasingly conservative pattern. As is often the case in the biography of noted clans, the "founder" of the family's importance in the New World was a personality characterized by "dash," élan, progressive and almost radical ideas. Pierre Samuel duPont de Nemours (1739-1817) possessed all the qualities of intelligence, glamour, and "drive" which are associated with the "Illuminati," the heterogeneous group whose brilliance of mind and spirit enlightened the late eighteenth century and blazoned the future of western civilization.

Pierre's son, Eleuthère duPont, started a powder mill

at Jefferson's request in 1802, near Wilmington. Eleuthère had been taught to make gunpowder by Lavoisier, one of the giants of modern chemistry, and had further experience in the government mills of France. His venture in the New World was to be the cornerstone of the family's wealth.

The story of the duPonts now becomes a corporate history. Later members of the family gained distinction in many diverse fields, but it is primarily with the industry founded by Eleuthère that the name is identified today. For ninety-seven years, from 1802 until 1899, the company remained unincorporated, operating as a partnership. During this span, which marked the building of America, the powder mills also grew, and went through the stages by which most large American concerns pass from "enterprises" to "interests."

The period from 1802 to 1872 was one of even development for the duPont company. America was a raw country; firearms were almost as universally used as any other necessary tool, especially on the frontier. Industry blasted paths and roads across the continent, and three times the nation went to war. To the degree that our national expansion was explosive, in a physical as well as a figurative sense, the powder business was ordained to prosper. As has been the case with so many historic industries in the United States, the duPont concern, or rather its guiding minds, became increasingly enamoured of size, and size in turn meant trustification.

The result was the formation of the so-called Powder Trust, which had the longest uninterrupted career of any American combine except the Standard Oil trust.

The formation of the trust is described melodramatically in an old article in the stately Harvard Quarterly Journal of Economics: "At ten o'clock on April 23, 1872, certain persons representing six gunpowder manufacturers held a meeting in New York City. . . ." The pool created at this meeting rationalized the powder industry of the United States.²

A revolution had occurred in the explosives industry. Nobel's invention of dynamite, intended to guarantee the peace of the world by making war too horrible to contemplate, had resulted in the emergence of a European dynamite cartel. In the United States dynamite was first manufactured in 1869, and had been included in the 1872 agreement. By 1897 the foreign cartel had decided to invade the American market, and began the construction of plants in Jamesburg, New Jersey. This threat to the American pool brought an instantaneous reaction. Emissaries of duPont, representing the American trust, journeyed to Europe for the purpose of making a satisfactory arrangement. Very little time transpired before a contract known as the International Agreement emerged from the series of conferences held between duPont representatives and the officials of the Nobel Company of London and the German dynamite trust. The terms of this document are interesting, not

only because of their connotation as a politico-economic agreement, but because they show the way in which German concerns used every device to insure their receipt of technological data on war material.

The "European factories," which included the Vereinigte Koln-Rottweiler Pulverfabriken and the English Nobel Dynamite Trust Company, agreed not to erect any powder works in the United States. DuPont agreed to refrain from undertaking any similar enterprise in England or on the Continent. The world market for high explosives was divided into four districts, with each of the members of the cartel having a protected national market, and other areas, such as South America, being designated as "syndicated territory," which might be exploited jointly. None of the parties to the agreement was to undersell the others, or to compete for orders from their respective governments. All technical information concerning processes used in the manufacture of military explosives was exchanged, with the understanding that duPont would keep the Nobel Trust and the German companies informed of all sales of powder to the United States Government, describing exactly the quality, quantity, and requirements which the powder was to fulfill.

In 1910 the Department of Justice brought suit against duPont, charging that both its foreign agreements and its domestic liquidation of competing firms constituted violations of the anti-trust laws. The Gov-

ernment won the case, and a decree of dissolution was handed down by the Court, which resulted in the partitioning of the principal companies into three units. As the Court said at the time, "The dissolution of more than sixty corporations since the advent of the new management in 1902, and the consequent impossibility of restoring original conditions in the explosives trade, narrows the field of operation of any decree we may make." Nevertheless, the dissolution was carried into effect by creating the Atlas Powder Company and the Hercules Powder Company, both of which are in existence at the present time, and both of which are tied very closely to the parent company by patent agreements and by mutual membership in cartels in the powder industry.

Within a few years from the date of the decree the duPont company was reorganized in Delaware with a relatively modest capital of \$120,000,000. The estimated assets of the duPont company at the present time are in the neighborhood of \$700,000,000, but again this figure is based upon "visible" holdings, and is no indication of the real strength of the company.

The two most prosperous periods in the history of duPont were the years of the first World War and the period from 1929 through 1933. During 1914-1918 the gross income of the company was over a billion dollars, with a net profit close to \$230,000,000. DuPont used part of this tidy profit to buy ten million shares of the General Motors Corporation, thereby obtaining the

largest unified interest in the greatest of the Big Three of the American automobile industry.

The enormous expansion of duPont's facilities during the war, coupled with the many chemical shortages, such as dyestuffs and nitrates, which this country encountered, pointed the way toward the logical paths of development for the duPont endeavors. In rapid succession during the years after the Armistice duPont entered the fields of dyestuffs and other organic chemicals, paints and varnishes, electro-chemicals. It also inaugurated a progressive pattern of research. It combined with other chemical interests, and increased its general chemical manufacture so that between four and five thousand products bear the name "duPont."

The Armistice had hardly been signed before duPont representatives were on their way to visit I. G. Farben for the purpose of forming an alliance. In November, 1919, representatives of duPont and of the Badische Company, the principal corporate entity of I.G., met in Zurich, Switzerland, and worked out a tentative agreement for the organization of a "world company" to exploit the Haber-Bosch process for the synthetic manufacture of ammonia. Also, duPont sought know-how and technical instruction in the dyestuffs industry. Although I.G. was not averse to an agreement with duPont, the two could not reach complete accord on the relative division of control. DuPont sought to turn the "regulatory screw" of tariff legislation on I.G., but the

latter, conscious of its real strength, could not be moved from its entrenched position. In fact, duPont's envoys were of the opinion that Dr. Carl Duisberg, who was in many respects the master mind of I.G. from its formation in 1904 until his death a few years ago, still believed that he could "bully the U. S."

I.G. was being courted at the same time by British chemical interests, and took full advantage of its strategic and technical situation in order to obtain the best possible conditions for the reestablishment of its world position. While the duPont-Badische negotiations did not result in the formation of a grand alliance, they were by no means without issue. DuPont's relationships with the Vereinigte Koln-Rottweiler Pulverfabriken (V.K.R.) became even closer. Both the V.K.R. and the Dynamit Aktiengesellschaft (D.A.G.), the successor of the German Nobel Company, became a part of I.G. Together with I.G., duPont and Imperial Chemical Industries, Ltd. [I.C.I.] both owned minority interests in the stock of D.A.G., and duPont at one time had about three million dollars invested directly in I.G.'s stock.

On January 1, 1926, an agreement was consummated between duPont, D.A.G., and V.K.R., corresponding to the Explosives Agreement of the same date between duPont and I.C.I., which effectually divided the world market for military powder. This agreement, discussed in the hearings of the Nyc Committee in 1934, was

found in the duPont files marked "Unsigned—in effect as a gentleman's agreement." Under this agreement, as under the arrangement with I.C.I., patent licenses and technical information were exchanged, and since, in deference to the provisions of the Versailles Treaty the German companies could not sell military explosives in other countries, duPont became, in effect, their sales agent. To quote the Nye report, "In other words, though German munitions companies cannot sell abroad, American companies can sell for them, and to our own Government at that."

Partly because of the failure of the conferences with I.G., duPont ultimately entered into as complete a union with I.C.I. as it is possible for two distinct groups to achieve and still retain even nominal individuality. I.C.I. was the combination of the British dyestuffs industry and the successor to the British Nobel company with which duPont had established relations in 1897. There are a series of agreements between duPont and I.C.I. pertaining not only to the general division of fields and markets between the two, but dealing also with special situations, such as that in South America and in Canada. In both of these latter areas, duPont and I.C.I. operate jointly-owned subsidiaries, known as Duperial in South America, and Canadian Industries Limited in Canada.

While the relationships between duPont and I.C.I. cover all branches of the chemical and explosives in-

dustries, both companies have, of course, entered into other commitments, principally with I. G. Farben, with the Mitsui interests of Japan, and with many other lesser concerns in the United States.

The hierarchy of agreements in the chemical and explosives industries approaches world-rationalization. Because of I.G.'s position, it has been able to use the apparently overlapping network of understandings to "divide and rule," in its campaign for world supremacy. Were it not for the consolidation existing between duPont and I.C.I., there would be no counterpoise to I.G. But because the duPont-I.C.I. alliance was based on commercial, not military, considerations, I.G.'s ulterior motives were not clearly understood. Both companies were therefore the more readily persuaded that I.G. meant no harm.

Because of duPont's position in our chemical industry in particular, and our economy in general, it is beguiling to many undemocratic minds to consider that duPont could be America's I.G. As the nearest facsimile of economic feudalism in this country, duPont men have flirted in the past with various reactionary organizations, such as the Crusaders and the Liberty League. While these tendencies are not visible at present, they are latent in duPont or any similar economic unit.

Monopoly in whatever guise means rigid control of economic life. A replica of I.G. in the United States, constantly spreading its spell over industry and gov-

ernment, would by the very reason of its being, tend to crush democracy. The political integrity of the individual, and the right to engage in enterprise, are the freedoms for which we fight. Democracy and an I.G. could not dwell together in Germany, nor could they do so here.

7. DYESTUFFS—THE KALEIDOSCOPE OF WAR

THE history of dyestuffs reveals the strategy and tactics of German Geopolitik from the time Germany became a nation to the present. An indication of the significance of the dye industry lies in the fact that, as we have seen, the center of the high command in Germany's economic war is I.G. Farbenindustrie, which, translated literally, means "Dye Industry." In the light of the importance of the dye industry in world affairs both past and present, it is logical that this should be so. The dye industry can be and has been mobilized for war almost since its establishment.

Explosives, poison and noxious gases, antitoxins and serums, so essential to warfare, belong to the same chemical category as do dyestuffs. The few basic coal tar and organic compounds are used to make several hundred types of so-called "intermediates," which may in turn be used with equal facility to make dyes, medicines, or explosives. Consequently, research in the dye industry has effects in all other branches of the organic chemical industry. Out of German dye laboratories have come

phosgene, among the deadliest of gases, as well as salvarsan and sulphanilamide, the magic bullets used to destroy disease. The whole paradox of science is illustrated in these aspects of the dyestuffs industry. Compounds almost identical in chemical properties can be used to kill or to cure, as weapons of man against man or of man against the destructive forces of nature.

The story of the dye industry in the first World War has already been told. It is with the sequel to the war that we are now concerned. The Alien Property Custodian's office established by the American government was an emergency measure. It is evident in the litigation and confusion which attended the administration of this office that, although the Alien Property Custodian was intended to act as a trustee for the public, in effect it substituted itself for German patent holders. This statement is not intended to impugn either the motives of the incumbents of that office or to cast aspersions on its operations. No purpose would be served by discussing the pros and cons of the disputes which arose during and after the war concerning the disposition of German patents, or the claims made by various litigants.

One thing is clear. The spirit and purpose of the Alien Property Custodian legislation, if not the letter, were directed toward the establishment of American industries in lieu of those previously dominated by Germany. This was especially true of the pharmaceutical and dye industries where, as we have seen, German con-

trol placed the United States in a precarious position when war began. Despite repeated warnings by those in Congress and those in industry that unless effective action was taken a return of German control would occur at the end of the war, the intent of the legislation was frustrated.

In retrospect the story looks quite simple. Those leading the fight to correct the evils revealed by the World War placed their reliance on a high tariff and, indeed, succeeded in achieving it. Once the security of the country was entrusted to the tariff law, there was no consideration of the possibility that this "Maginot line" could be pierced. Complacency, coupled with German ingenuity and the fact that Germany continued her economic war without alarming her opponents, were the chief conditions that ultimately lead to encirclement of the new American dyestuffs industry. If the analogy may be continued, the tariff wall about the dyestuffs and pharmaceutical industries was not pierced so much as it was flanked. It must be recorded to his everlasting credit that President Wilson not only recognized the need of a tariff, but realized that a tariff would be insufficient to assure the future independence of our organic chemical industry. In his annual message to Congress, delivered May 20, 1919, he said:

Nevertheless, there are parts of our tariff system which need prompt attention. The experiences of the war have made it plain that in some cases too great

reliance on foreign supply is dangerous, and that in determining certain parts of our tariff policy domestic considerations must be borne in mind which are political as well as economic.

Among the industries to which special consideration should be given is that of the manufacture of dyestuffs and related chemicals. Our complete dependence upon German supplies before the war made the interruption of trade a cause of exceptional economic disturbance. The close relation between the manufacture of dyestuffs on the one hand and of explosives and poisonous gases on the other, moreover, has given the industry an exceptional significance and value.

Although the United States will gladly and unhesitatingly join in the program of international disarmament, it will, nevertheless, be a policy of obvious prudence to make certain of the successful maintenance of many strong and well equipped chemical plants. German chemical industry, with which we will be brought into competition, was and may well be again a thoroughly knit monopoly, capable of exercising a competition of a peculiarly insidious and dangerous kind.

In 1919 the Alien Property Custodian auctioned the Bayer dyestuffs and pharmaceutical interests, including seized patents, to the highest bidder, the Sterling Products Co. (Inc.) of West Virginia. This company, interested only in the pharmaceutical business, disposed of the dye business to the Grasselli Chemical Company.

Although there is no evidence to indicate that it was

the result of conscious planning, the divorcement of the dye and pharmaceutical enterprises is worthy of reflection. The German dye and pharmaceutical business is merged into one industry. This unification enormously increases the creative potentialities of the industry, because a great many medicinal and pharmaceutical discoveries of recent years are closely related to the chemistry of dyestuffs. For example, Ehrlich's cure for syphilis is actually a dye that kills the spirochete by impregnating it in much the same manner that indigo blue impregnates cloth. Sulphanilamide and the rest of the sulphur series of drugs belong to the sulphur and aniline derivatives which form the basis of our present dye industry. Wherever research laboratories experimenting in both dyes and pharmaceuticals are operated jointly, there is greater likelihood that discoveries having application in one field will be found to apply to the other. When such interests are divided, it is far less probable that the dual utility of such discoveries will be realized.

The need for the development of a dyestuffs industry in the United States under the control of bona-fide citizens, in view of the experience of this country during the World War, could not be ignored. It has already been remarked that before the war Germany supplied some 85% of the world's dyes and practically all of the intermediates.* The industry in the United States

* An intermediate is a semi-fabricated coal tar product which is necessary for the manufacture of any one of a large group of finished products.

was relatively infinitesimal, since there were only six dye plants in operation and these were dependent for their intermediates upon Germany. The American industry at the beginning of the World War employed only 528 people, and the value of its production was less than \$3,500,000 per year. The famine of pharmaceuticals and dyestuffs caused this country to become acutely conscious not only of its lack of products but of its lack of productive facilities in this industry. So drastic was the shortage of dyestuffs and medicinal supplies during the war that when the German submarine *Deutschland* arrived in Baltimore with a cargo of these materials, it was an occasion for jubilation. The fact that a military vessel could make the trip in face of the British mastery of the seas, and the significance of such a voyage to our vaunted isolation, was overlooked.

The sale by the Alien Property Custodian of the German Bayer dyestuffs, pharmaceutical patents and operating units to Sterling Products, and the latter's sale of the dyestuff branch to the Grasselli Chemical Company appeared to be a step in the right direction. With the purchase by the Grasselli company of the dye business the seed of a large self-sufficient American-controlled industry was planted. There was one disturbing factor: the reemployment of many of the German personnel of the Bayer interests, but where else, it could be argued, were technicians in so highly specialized a field to be

found? Rudolph Hutz, the manager of the former Bayer dyestuffs company in the United States, who had been interned during the war, became general manager of the Grasselli Chemical Company's dyestuffs division; there were many lesser figures thus transferred.

Shortly after the Armistice, and largely because of the many blunders of the Treaty of Versailles, as well as dissatisfaction with the British and French attitude concerning war debts, the post-war depression in the United States, and the sufferings of the vanquished Germans, American distrust of her former foe began to wane. Consequently, when in 1920 the German economic offensive began to roll, there was almost no alarm in this country. Frustrated to some extent by the tariff and by the loss of its valuable patents in the dyestuffs and pharmaceutical fields, two alternatives were open to the German interests: they could enter into agreements dividing world territory with the American group, or they could re-purchase as much of their former assets in the United States as could be bought. Since the alternatives were attractive, they adopted both. In 1920 the German Bayer Company executed an agreement based upon patents and trademarks with the Sterling Products Company.*

So far as dyestuffs were concerned, the German Bayer company made overtures to the Grasselli Chemical Company in 1923, and entered into a formal agreement

*This agreement will be discussed in the section on pharmaceutical cartels.

with them in 1924. Under this agreement, a jointly owned company was formed. Fifty-one per cent of the stock was vested in Grasselli, the remainder in German Bayer. The new firm, called the Grasselli Dyestuffs Company, was apparently controlled by the American participant, but this appearance was both fictional and ephemeral. For one thing, the German Bayer company carefully protected its dominance of the world market by providing that the new company could sell only in the United States and Canada. Hence, one of the most important elements in the infant dye industry was removed as a threat to Germany's new type of imperialism. Bayer also protected another part of its business by prohibiting the new dyestuffs company from engaging in the production of heavy chemicals. Finally, the monopoly movement in America was encouraged by the contract between Bayer and Grasselli, since it was agreed not to form any other dyestuffs company which might compete with their jointly owned enterprise.

Aided by the desire of the Grasselli Chemical Company to free itself from the fear of German competition in its domestic market, the Bayer company was able to sink the first shaft in the reconstruction of German control of the dyestuffs industry in the United States. Numerous ramifications of this early agreement were to ensue, causing much perplexity and grief to our government, as well as much embarrassment to certain industrial enterprises and highly placed individuals not suf-

ficiently aware of German geopolitics to keep clear of "entangling alliances."

Thereafter agreements and reorganizations within the dyestuffs group went forward with unabated velocity, each time increasing German control. On June 17, 1924, a new agreement, basically the same as the earlier one, but including as a signatory Grasselli Dyestuffs, was executed. On March 23, 1925, another German dyestuffs manufacturer was brought into the scheme. The Hoechst Company joined in a new agreement and was given 30% of Grasselli Dyestuffs stock, with Grasselli Chemical and Bayer retaining 35% each. On the same day a supplemental agreement providing for a sales organization called General Dyestuffs Corporation, to market the dyes of Grasselli Dyestuffs, was executed. On July 31, 1925, all eight members of I.G. were included by virtue of still another series of agreements, which provided the same basic arrangements of the very first contract with the additional feature of profit-sharing by the various parties. This profit-sharing was not without benefits to Grasselli Chemical, but it parted with control of the former Bayer dyestuffs business in the United States. It was, therefore, left in 1925 with 35% ownership of Grasselli Dyestuffs, the remainder and controlling portion once again passing into the hands of the great I. G. Farbenindustrie. Wilson's prophetic apprehension was becoming a concrete reality.

By October 20, 1928, the Grasselli Chemical Com-

pany was eliminated entirely. The E. I. duPont de Nemours Co., desiring to purchase the Grasselli Chemical Company, would not do so until the latter was free of the dyestuffs business, lest duPont, now a dye producer itself, be liable under the antitrust laws for purchasing a competitor. On October 20, 1928, Grasselli Chemical Company sold out the dyestuffs business to representatives of I. G. Farben, and three days later duPont acquired the Grasselli interests itself. The Germans, through I. G. Farben, had in less than ten years after the Armistice regained the dye business which it had lost by confiscation. This left the Germans with control over a substantial part of United States dyestuffs production, although by no means as complete as during the period prior to the first World War.

The Germans, of course, were confronted with other problems incident to their loss of control of the dyestuffs markets during and after the first World War. Other concerns in the United States, such as duPont, Allied Chemical & Dye, American Cyanamid, and a host of independents, recognizing the fruitfulness of the dye business in this country, entered the field. Even before the war, the Swiss were beginning to develop a substantial business. The restrictive effect of the war upon German exports gave the Swiss an opportunity which they did not forego. In fact, the three Swiss producers, Ciba, Sandoz, and Geigy, formed a cartel group of their own under a "Community of Interests Agreement." Conse-

quently, by 1920 the Swiss were ready for a fling in the major circles of international business.

Because of Germany's historical priority in the fusion of the dyestuffs industry within her frontiers, and because the other countries of the world had been held in subjection by the German cartel until the World War, the combination movement in the dye industries outside of Germany did not develop fully until the 1920's. But no sooner had England, the United States, and France succeeded in establishing their own domestic sources of supply than the shadow of the German trust again was cast over the markets. The new dye industries in these countries took no more than their first steps before the old urge to "get together" made itself felt. Combination became the object, and absorption or amalgamation the means, by which dyestuffs companies in the allied countries began their own cartellization. It may be argued that, despite tariff protection, the new entrants knew from past experience that the proficiency of the German trust's "selective attack" or "sharpshooting" exposed them to repeated subjugation. But it was also the desire of the "rookies" in England, France, and the United States to "play ball" with I.G. and thereby further their own monopolistic security. If the American, British, French and other non-German dyestuffs companies had heeded the warnings of history, they might have hesitated long before entering into any agreements with the German interests. Admonitions were voiced by many

outside the industry, both here and abroad. For example, Henry Hauser, writing even before the end of the war, in his study "Germany's Commercial Grip on the World," counselled extreme caution. He said, "These attempts at international regulation of production and of sales appear singularly dangerous to anyone who knows the lion's share which Germany means to reserve to herself in the 'organization of the world.'"

Nevertheless, the avidity with which the managers of the dye industries looked toward the integration of the world's dyestuffs concerns was too strong to be stopped by fear. By 1922 negotiations were under way between the British Dyestuffs Company and the Germans, and between duPont and the British. Rapid co-ordination by agreements and mergers within each country, and higgling with each other occupied the years immediately following the Armistice.

In 1926, an executive of duPont, in a letter to duPont's European manager, outlining the formation of Imperial Chemical Industries, said:

When Sir Harry [referring to Sir Harry McGowan] was in New York, he met Sir Alfred Mond there, and in the course of a couple of hours' conversation, these two had reached practical agreement to consolidate the British Chemical industries in a single company. The details of this agreement were arranged shortly after the return of Sir Harry to London, with the result which you now know. While in

New York, Professor Bosch [of the I.G.] was informed of the proposed amalgamation, and expressed himself as extremely well pleased, and it was arranged that he would stop off in London on his return to Germany.

Sir Harry explained . . . *that the formation of I.C.I. is only the first step in a comprehensive scheme which he has in mind to rationalize chemical manufacture of the world.* The details of such a scheme are not worked out, not even in Sir Harry's own mind, but the broad picture includes working arrangements between three groups—the I.G. in Germany, Imperial Chemical Industries in the British Empire, and duPonts and the Allied Chemical & Dye in America. The next step in the scheme is an arrangement of some sort between the Germans and the British. He appreciates fully, or at least he says he does, the supreme difficulty in the way of the final step, namely the personality of the management of the Allied Chemical & Dye. In spite of this, he is hopeful that a satisfactory arrangement can be come to. [Italics added] ¹

Although duPont and I. G. Farben never succeeded in establishing a general understanding such as that between duPont and Imperial Chemical Industries, they did work out a degree of "practical" cooperation. It was not lack of desire on the part of either to enter into restrictive agreements which frustrated the consummation of an entente. In the years 1927-1929 continuous nego-

tiations contemplating the establishment of a jointly owned dyestuffs company to advance their mutual interests in the United States were carried on even to the stage of working out the specific functions of the proposed American Dyes Company. The point of difference between duPont and I.G. which no amount of bargaining could overcome was the question of control of the proposed company. I.G. demanded at least a 50-50 partnership. To duPont's offer of a 49% share, I.G.'s response is summarized in a duPont memorandum:

I.G. suggest a 50/50 stock ownership, so that they would have a veto power as to expansion, export and prices, and thus be able to protect their world markets against American competition. We did not agree to this and stood firm that such an arrangement would be impossible. In connection with this proposition, the I.G. suggested the desirability of taking in the Allied Chemical & Dye Corporation. We gave it as our opinion that this was impossible on account of the Sherman Law. They also suggested that it might be desirable to take in the Cyanamid Company.

Dyes: The I.G. had no criticism of our suggestions, but stated that they must take the matter up with their American associates first before giving any answer. We understood that they had in mind Grasselli, and offered to approach Grasselli, with whom we are on friendly terms, but were requested to allow them to take the matter up first. In this connection, Dr. Bosch suggested the desirability of taking in the Swiss Company in America.²

When it was at last realized by duPont that further efforts to reach an understanding were futile, they contented themselves with an "amicable cooperation" embracing "on the one hand understandings about foreign markets and on the other . . . amicable settlements of all patent litigation in the United States of America."

In a report dated March 18, 1936, concerning duPont-I.G. relationships in patents and processes, it is stated:

In the last few years duPont-I.G. relationships have notably improved, due partly to the personalities of individuals entrusted with negotiations and partly to an officially more friendly attitude from higher up in the I.G. organization. Also it is said that I.G. now wishes to put its patent office operations in this country on a profitable basis through a liberal policy in granting licenses.

Various informal contacts and the cementing of more cordial relations have been achieved through the London Office but all actual patent licenses and agreements have been worked out with I.G. in New York.

Orchem. [which refers to the Organic Chemical Division of duPont] has been notably successful in dealing with Mr. Duisberg and the I.G. patent firm of Hutz and Joslin in New York City. In the last three years some 42 licenses have been negotiated and interferences settled and these things are now more or less taken in their stride with the important and unimportant items all being run through the mill

together. Messrs. Holmes of Orchem. and Brownell of the Legal Department, have achieved excellent results in their handling of this situation.

* * *

The I.G. and duPont have an informal agreement that when we have German patents which seem to us might be profitably exploited in Germany, and when these patents cover subjects on which we have no prior commitments or moral obligations to discuss with anybody else, we will bring them first to the attention of the I.G. and they will do the same for the United States.³

It must be stated, in fairness to duPont, that in so far as its negotiations and transactions with I.G. are concerned, duPont exhibited far greater respect for the national interests of the United States than many of its monopolistic brethren in other industries. To the extent that they were aware of I.G.'s desire to obtain veto powers over various branches of American industry, duPont reacted in what could be called a patriotic manner. It was, of course, a favorite device of I.G.'s to obtain 50% ownership of joint companies formed as a result of its contracts with American industries and, where possible, to retain as a part of its prerogatives the ultimate power of decision over construction of operating facilities, development of output, general price levels, and export policies of such joint concerns. This device was successfully used by I.G. in the case of Gras-

selli Dyestuffs Company, which has already been discussed, and in the cases of the Magnesium Development Corporation, the Winthrop Chemical Company, Jasco, and others. A qualification must be entered concerning duPont's maintenance and regard for national interest. In the semi-annual report of its Foreign Relations Department dated February 9, 1940, duPont stated:

I.G. have given evidence of the adoption of a policy of industrial development in South America through purchase of the Fluminense caustic-chlorine plant in Brazil and of shares of the Electroclor Company in Argentina. Arrangements have been made for the repayment to the I.G. of money advanced to DuPont for the purchase of shares in the latter company as it is impracticable for I.C.I. to be in partnership relationship with a German Company. *The duPont Company informed I.G. that they intended to use their good offices after the war to have the I.G. participation restored.* [Italics added] ⁴

Turning now to other phases of the cartellization of the world dye industry, the most important interconnections are those between duPont and I.C.I., between I.C.I. and I.G., between I.G. and the European dyestuffs cartel, and the relationships between all of these and the Mitsui interests of Japan. Although each one of these associations could be the topic of a separate economic study, we can telescope the detailed arrangements in order to concentrate on their total effect. Very

soon after the formation of I.C.I., duPont's representatives (in this case Lammot duPont was the chief emissary) conducted conversations in the years from 1927 to 1929 which resulted in an agreement which amounted to the complete alliance of duPont and I.C.I. in the world chemical industry.

This agreement, which is drawn up in phrases reminiscent of a major political treaty, provided for the exchange of information on all patented or secret inventions, for the exchange of exclusive licenses under each other's patents, and for the disposition of world markets. In a truly imperial manner the agreement provides that duPont shall have exclusive rights in the countries of North and Central America exclusive of Canada, Newfoundland, and British possessions, and that I.C.I. shall have exclusive rights within the British Empire. In the case of India, duPont was permitted to continue its activities subject to a future settlement.

In 1931, duPont and I.C.I. agreed to transfer all of duPont's assets in India to I.C.I. in exchange for the transfer to duPont of the entire ownership of I.C.I.'s American subsidiary, Dyestuffs Corporation of America. I.C.I. was careful to inform duPont of its 1931 agreement with I.G. and the European cartel, and to reassure duPont that their mutual understandings were in no way affected. In Canada, duPont and I.C.I. operated a jointly owned company, Canadian Industries Limited, whose supervision was somewhat informally entrusted

to correspondence and meetings of the representatives of the principals. This method of administration proved satisfactory until 1936, at which time, because of legal considerations, duPont expressed its preference for a formal tri-party agreement to define C.I.L.'s status.

The original 1929 agreement between duPont and I.C.I. was automatically terminated on June 30, 1939, at which time a renewal contract was entered into, having substantially all the features of the earlier understanding.

One of the knottiest problems encountered by all direct and indirect participants in the world dyestuffs cartel was posed by the "gentlemen of Japan." Since 1931 the cartel, including National Aniline Corporation (a subsidiary of Allied Chemical & Dye), duPont, I.C.I., and the Europeans, had controlled the market in China on a formal basis in accordance with what was called "the China Six-Party Agreement." The Mitsui interests, having established themselves in the dyestuffs industry as the leader of the Japanese market, were successfully crowding out duPont, I.C.I., and the continental cartel. The members of the cartel felt that Mitsui could be brought in on the same basis as other national monopolies, but Mitsui's claims and aspirations, in line with its Asiatic plans, were somewhat larger than had been anticipated. Appeasement was the cartel's first plan, but with a readiness for "war" if that should be necessary. In 1934 A. C. Lumley, far-eastern repre-

sentative of the National Aniline Corporation, wrote that:

We therefore believe it will be wise to attempt to ascertain the limit of the Mitsui ambitions by meeting them in conference with the avowed object of attempting an amicable arrangement. Mitsui may refuse to enter such a conference; if so, nothing is lost and the fight can begin exactly as it would have begun without any conference proposal. Even if we get Mitsui into a conference, their ideas may be too big and they may demand a share of the world market larger than other indigo manufacturers are willing to give them. If so, again, the fight can begin as if the conference had not been held. On the other hand, there is just the chance that a satisfactory arrangement can be reached and a price war averted, and it is my firm conviction that such a possibility should be investigated.⁵

Mitsui became a member of the International Committee on Dyestuffs and Sulphur Black, which allocated the bulk of dyestuffs consumed in Asia. In 1934, at which time Mitsui was included on the committee, it is evident that the Japanese intended if possible to use their membership simply as an operating base. In 1938 the Foreign Sales Manager of National submitted a report on the China market, setting forth the average sales by the Japanese and indicating that there were grounds for disturbance so far as the activities of the Japanese were concerned. He stated:

The above figures are emphasized because Japan as yet is not totally independent of imports of Miscellaneous Colors into Japan proper, and Japan's existing manufacturing capacity . . . is still very inadequate to support Japanese ambition within the occupied Chinese area, regardless of what is undoubtedly a fundamental policy now with the Japanese Government; namely, to consolidate her commercial position in the occupied Chinese area to the exclusion, if at all possible, of foreign manufacturers, with the possible exception of what may be a co-operative plan with the German I.G.⁶

In reviewing the operation of the dye cartel up to the outbreak of war, there are certain features which may be emphasized by recapitulation. Without considering for the moment the relative positions of the individual concerns involved, it is apparent that the entire world, with the exception of Russia, was organized in a more or less complete fashion. All of Europe, all of North America, all of the major countries of South America, and all of Asia were divided up among the principal dyestuffs producers. Allocation of territory, interchange of patents and technical information, fixing of production quotas and prices, and all other behavior characteristics of international cartels are to be found in the web of agreements and understandings that has been sketched. In the center of the web, spinning out a filament in every direction, was I.G.

Like all able military commanders, the Germans care-

fully reviewed their earlier campaigns so that for future battles past mistakes could be avoided, weakness in the enemy more readily exploited, and instruments and devices which proved themselves worthy more fully utilized. Rarely has this been so true as in the development, scope, and operation of the American I.G. Company. Disguise, surprise, and the economic counterpart of a fifth column were all to be found in its arsenal. Where devices and instruments of the World War proved inadequate, new ones were substituted; where they had succeeded, they were sharpened and employed again.

In 1929, for the ostensible purpose of merging all of I. G. Farben's interests in the United States, the American I.G. was formed. Included in this network was the General Aniline Works, described earlier as Grasselli Dyestuffs; the Agfa-Ansco Corporation, a large photographic manufacturing and supply group; a 50% interest in Winthrop Chemical Company, which served as I. G. Farben's link to the pharmaceutical business of the United States, and a little later a 50% interest in the Magnesium Development Company, which was the vehicle combining I.G.'s light metal interests with the Aluminum Company of America. Through the ownership of a large block of Standard Oil of New Jersey stock, American I.G. was close to this company. Walter Teagle, the President of the Standard Oil Com-

pany of New Jersey, was a member of the Board of American I.G., as was Edsel Ford.

The German dyestuff interests had learned their lesson well. In addition to securing membership on the board of directors of these two prominent American industrialists, the German ownership of the organization was also concealed. In 1928, I. G. Farben organized in Switzerland a company known as the Internationale Gesellschaft für Chemische Unternehmungen A. G. (I. G. Chemie), and transferred to it I.G.'s holdings in American I.G. *It was then often and loudly proclaimed that American I.G. was Swiss-owned*, and had no German connection, notwithstanding the fact that until 1940 the head of I. G. Farbenindustrie, Hermann Schmitz, was also president of Swiss I. G. Chemie, and that the directorate of American I.G. was *in the control* of former officials of I. G. Farbenindustrie, including its president, Dietrich Schmitz, the brother of Hermann Schmitz.

The desire of I. G. Farben to retain an American façade and the magnitude of its power were responsible for its ability to refuse successfully permission to Walter Teagle to resign from the board of American I.G. He tried to do so continuously after 1933, when he was advised of the implications of his presence on that board. "The cartel control was . . . strong enough . . . to keep Mr. Teagle . . . upon the board of this I. G. Farben company against his will."⁷

In 1939, the eruption of war between Britain and Germany was also the signal for the German affiliates in the United States to take their designated posts. This will become clearer as the rest of the cartel story unfolds. By December 1939 the American I.G. was somewhat reorganized and its name changed to General Aniline & Film Company. Every charge that General Aniline & Film was German-owned was answered by statements of its officers that it was Swiss-owned. The Board of Directors took on a more American complexion with the addition of some new directors. "American I.G." may have become General Aniline & Film, but it remained I.G. in America. A soldier without uniform is still a combatant, except that he may be known by a more unsavory term.

Audacity is a quality not lacking among the Germans. Willingness to do the bizarre and unexpected has been an exceptionally effective weapon in their successes. Nevertheless it is still somewhat breathtaking to note that I.G. made arrangements for its agencies in the British Empire to continue business despite the war. On September 19, 1939, just sixteen days after Britain and Germany were at war, I.G. cabled General Aniline & Film:

. . . IN ADDITION TO CANADA WE RELEASE YOU FROM EXPORT RESTRICTION IN REGARD TO FOLLOWING COUNTRIES GREAT BRITAIN, BRITISH INDIA, AUSTRALIA, NEWZEALAND BUT ONLY FOR DURATION OF

PRESENT STATE OF WAR AND AS FAR AS SUPPLIES TO FOLLOWING FIRMS ARE CONCERNED
 IG DYESTUFFS LIMITED 14 BRIDGE STREET MANCHESTER 3 CHEM DYES LTD WITTET ROAD BALLARD ESTATE BOMBAY DYCHEM TRADING CO PTY LTD 573 LONSDALE STREET MELBOURNE CONE DYES AND CHEMICALS LTD 15 COURTENAY PLACE WELLINGTON C THREE PLEASE CONFIRM⁸

Thus an arrangement was made whereby the I. G. Farben agencies in the British Empire were to continue throughout war with General Aniline & Film providing the necessary dyestuffs. Note should be taken that General Aniline & Film could not sell generally in the British Empire but only through I. G. Farben's agents.

Acting a little more cautiously than its government, which thought the fall of France would end the war, I.G. recognized that even the possible fall of Britain might not end "the present state of war." I.G. thereupon amended its cable by sending another on September 21, 1939.

. . . REPLACE IN FIRST TELEGRAM "FOR DURATION OF PRESENT STATE OF WAR" BY "UNTIL FURTHER NOTICE" AND ACT ACCORDINGLY⁹

On October 16, 1939, the pinch of the blockade was felt by I.G.'s agency in Colombia, South America, and General Aniline & Film received a cable from I.G. granting permission to sell there, but only to the I.G. agency. By January 8, 1940, General Aniline & Film

was permitted to sell to all of Latin America, and a list of I.G. agencies was supplied. Sales could be made only through these agencies. This simple device of protecting the I.G. distributive outlets in Latin America may have serious military consequences some day. Of immediate importance was the fact that the British blockade was disrupted.

8. PLASTICS—THE TEST-TUBE METAL

GERMANY'S metal reserves have never been enough to fill the maw of Mars. In her search for "ersatz," Germany years ago saw in plastics the ideal material with which to round out the stock-pile.

But plastics are more than ersatz—they are a new frontier of science. By exploring every source and every application of plastic materials, Germany has created an almost inexhaustible well of novel and useful products. The role which plastics take in war is larger every day. The 10,000-mile bomber of the future may be pressed out of plastics lighter than the light metals and equally as strong.

The emergence of plastics on the industrial scene is relatively new. The industry in this country at present produces annually about 300,000,000 pounds of plastics, valued at approximately \$500,000,000. Their uses have not only been of a substitute variety, but because of their many new characteristics, they have probably supplanted many uses of glass, metals and wood permanently. Plastics are the genies in the test tube, which are called up to remedy shortages.

The functions of plastics in war are manifold, including service as windshields on all airplanes, parachute flares, navy mosquito boats, crash helmets, bayonet sheaths, gunstocks, bayonet handles, and a variety of other military goods. This merely scratches the surface of their diverse applications. Suggestion has been made that modern soldiers should wear coats of plastic armor. The Ford Motor Company has already experimented with an all-plastic automobile body. Plastics' domestic uses have already invaded the fields of jewelry and ornamentation, kitchenware, furniture, clothing such as belts and suspenders, optical lenses, and medical instruments. Plastics have practically eliminated rubber as a material for dental plates. Some plastics can "bend" light, and this peculiar property has made it possible that in the future windowless offices, factories, and homes can enjoy "piped sunshine." Still in its infant stages, the future of the industry is already assured.

The fields of organic chemistry, as already noted, are so complex, and have so many ramified interrelations, that developments in one have applications and effects in others. Pharmaceuticals and dyestuffs have already served as examples. Plastics are endowed with similar physical and chemical properties, and their history is complicated by similar commercial and geopolitical difficulties. Their development, therefore, is replete with international cartel agreements, involving division of

territory, patents, and all those characteristics which identify German Economic War.

There are many kinds of plastics. Germany has channeled its indefatigable science in the development of one of the most important, namely, methyl methacrylate, which is probably better known here under the trade names of Plexiglass and Lucite. This plastic is made from coal, oil, and air.

Research on the problem of eliminating excess weight in aircraft is among the major projects of aeronautical laboratories. The less weight, the more gasoline, hence greater range; the less weight, the more weapons, hence maximum destructiveness. The needs of the Luftwaffe have therefore governed the experiments with plastics in German industry.

This special type of plastic is more transparent than glass. It increases a pilot's range of vision, while giving him greater protection, for it is shatterproof. Cockpit enclosures, the noses of Flying Fortresses, and all parts of a plane that must give the crew greater visibility with a minimum of risk are made of Plexiglass.

As its name implies, this plastic is readily shaped into any form desired. It can be machined, sawed, or moulded better than any metal. In fact, it can be best defined as a kind of wooden glass. The value of plastics to Germany is transparent.

Back in 1903 a Dr. Otto Rohm and a Mr. Otto Haas formed a partnership in Darmstadt, Germany, to manu-

fracture and market a substance known as Oropon, which is used in the tanning of hides. Shortly thereafter, Otto Haas came to the United States, and another partnership, called Rohm & Haas, was formed in Philadelphia. The Oropon business was highly successful. Dr. Rohm remained in Germany to run the German end of the business, while Mr. Haas in due time became an American citizen and conducted the business in the United States.

Shortly after the United States declared war on Germany in 1917, it was decided to incorporate the partnerships. The German firm was incorporated in Darmstadt, Mr. Haas receiving a minority interest. The American firm was incorporated on April 23, 1917, in Delaware, with both partners receiving 50% of the common stock.

In due course, the Alien Property Custodian seized the stock owned by Dr. Rohm in Rohm & Haas (Philadelphia). This was sold by the Alien Property Custodian to the Tanners' Products Company of Chicago for \$300,000. In 1924 the original German owners of the confiscated stock regained control. Otto Haas paid approximately \$500,000 for it, and turned the stock over in the form of a trust to Otto Rohm. Thus this important part of the tanning industry, scheduled to be a support of America's war-born chemical facilities, had been recaptured.

Rohm & Haas (Philadelphia) was technically independent of Rohm & Haas (Darmstadt)—they were

merely owned by the same stockholders. The spirit of cooperation prevailed, and their relationships were very close. On October 14, 1927, this propinquity was consolidated by an agreement between the parties. The familiar pattern of division of territory was in evidence. Rohm & Haas (Darmstadt) received exclusive rights to Europe, Africa, and Asia, while the American company received North and South America, Australia, New Zealand, and Japan. Although the leather tanning business was the main object of the agreement, provision was made for negotiating along similar lines the development of future discoveries which might be of interest to the parties.

It must be remembered that the major business during the period 1920-1930 of both Rohm & Haas companies was in the field of Oropon and general chemicals. The seed for the plastic, methyl methacrylate, however, was sown a long time ago. Dr. Rohm, in achieving his Ph.D. made it the subject of his thesis. It was not until the first World War that he obtained patents covering this product. These were, of course, licensed to the Rohm & Haas Company of Philadelphia.

When the development of Plexiglass blossomed into commercial practicability in 1934, a new agreement was entered into between Rohm & Haas (Darmstadt) and Rohm & Haas (Philadelphia) covering the field. The division of territory this time was not so generous to the American company. Rohm & Haas (Philadelphia) was

limited to the United States and Canada, and received the exclusive rights to patents in this territory. The right to export elsewhere was prohibited. The German company, on the other hand, retained rights to the rest of the world. The American company even agreed to do whatever they could to prevent their customers from reselling into the territory of the German company.

It will be recalled that invention has the unbusiness-like habit of spilling over into fields where it was not intended to go, and plastics are no exception. They had application outside the scope of glass, metal, and wood substitutes, and adhesives. The processes involved could also be employed in the fields of photography, dyestuffs, artificial rubber, pharmaceuticals, abrasives, and celluloid-like masses. From these broad pastures Rohm & Haas (Philadelphia) was specifically excluded.

A crystal ball is not necessary to see the omnipresent shadow of I. G. Farbenindustrie. These six fields were squarely within I.G.'s preserve, and any permission to engage in them was theirs to grant or deny. Thereupon, in the same year, 1934, I. G. Farben entered into agreements with both Rohm & Haas (Darmstadt) and Rohm & Haas (Philadelphia).

In the agreement between the German companies a straight division of fields was negotiated, reserving for the Darmstadt company the solid plastic field which, roughly speaking, concerns itself with structural mate-

rial like Lucite and Plexiglass. I.G. retained the generic chemical field from which plastics are derived.

The I.G.-Rohm & Haas (Philadelphia) contract was a masterpiece of diplomacy. Because of I.G.'s many agreements and interests in the United States, the contract had to be drawn without disturbing the web already spun. The division of territory was simple: Rohm & Haas (Philadelphia) was limited to the United States and Canada, I.G. ruling the rest of the world.

The division of the fields of operation was somewhat more involved because of these other contracts. Accordingly, Rohm & Haas (Philadelphia) was prohibited from engaging in the six areas of photography, dyestuffs, artificial rubber, pharmaceuticals, abrasives, and celluloid-like masses. Since the products Rohm & Haas was permitted to manufacture had uses in zones allocated to so-called "friendly firms" * of I.G., however, it was agreed that Rohm & Haas (Philadelphia) would be the sole supplier of the raw materials on the basis of cost plus 10%. "Friendly firms" * included General Aniline Works and Standard-I.G. Corporation.† Neither party could grant sublicenses without the consent of the other, except that I.G. did reserve the right to grant these licenses to "friendly firms." The contract is described by a Rohm & Haas (Philadelphia) official as follows:

* Those American firms either owned by or having agreements with I.G.

† A company owned jointly by Standard Oil of N. J. and I. G. Farben.

We already have an agreement with I.G. in which we divide the acrylic and methacrylic field between ourselves and I.G. Under the agreement with I.G. certain uses of the products are reserved to I.G. and certain ones to us. We, ourselves, no longer have the right to use the products in the field for certain purposes, . . .¹

And by another Rohm & Haas official:

. . . But one thing was clearly provided, namely, that *third parties should be prevented from entering into the fields* and therefore the exceptions were stated in the contract. Only the "friendly firms" and acquirers of licenses as to synthetic rubber should be included in the contract. . . . [Italics added]²

The freedom of activity and degree of domination of the chemical industry by German interests, which characterized the years prior to the World War, was no longer so great. Others were becoming active. On July 1, 1929, duPont and Imperial Chemical Industries entered into a gigantic cross-licensing agreement * covering a multitude of chemical fields, including "Acids, both organic and inorganic, for both the heavy chemical industry and special industries." This latter clause included acrylics.

At first the "division of territory" clause resembled the usual German cartel agreement. Imperial Chemical Industries received the British Empire and Egypt, while

* The same duPont-I.C.I. agreement mentioned in Chap. 6.

duPont operated in North and Central America. Canada and Newfoundland were to be free territories. In 1934 this agreement was somewhat modified to prevent the exchange of secret military information and to change the "division of territory" clauses so that the owner of a basic patent, the licensor, had the right to sell the product concerned all over the world. Actually, however, this was merely a change in form, apparently to correspond with the Antitrust laws of the United States, but in fact competition did not revive. In the opinion of the Antitrust Division, "the right of the licensor to sell in the licensee's exclusive territory was not exercised, but merely inserted to mask illegality."

These concerns had extensive research facilities, and it was not unlikely that acrylics would come within their camp. This is just what happened, and the usual patents ensued. Some of the more basic patents conflicted with those of the German-dominated cartel, and patent interferences arose. By this time the acrylic field was already complicated by a maze of agreements. Although the usual practice among large combinations finding themselves in patent conflicts is to settle them without resort to a full-dress legal battle, this case was complicated by the diverse interests of the various parties.

The negotiations between Rohm & Haas (Philadelphia) and duPont continued through 1935 and part of 1936, when an agreement was finally made. The points raised indicate clearly the problems involved. On one

side were the patent applications of Hollander and Neher, inventors for Rohm & Haas (Philadelphia), while on the other side was the Hill patent, covering an invention by Rowland Hill, a scientist for Imperial Chemical industries. Under Hill's patent an exclusive license had been granted to duPont for the United States. Neither side felt too secure as to the validity or priority of their inventions. DuPont in particular was worried. The General Manager of their Organic Chemicals Department wrote:

If the Hill Patent were strong and would give us a dominating position in the field of methyl methacrylates, we might hesitate to give up that position . . . if, however, there is a considerable doubt as to its validity, a settlement may be the best method of safeguarding our position. . . .³

Vigorous competition in the market place was contrary to the traditions of both corporations. Both were interested in achieving a stabilized and controlled situation. Patents formed excellent instruments with which to achieve this end. The greatest difficulty was met in achieving an agreed-upon cartel which would control the fields of endeavor, the prices, and divisions of territory. For almost the whole of 1935 these negotiations continued.

Among the difficulties that presented themselves was the fact that both had relations with foreign companies. Rohm & Haas, for instance, stated:

. . . we could think of a price agreement on the finished product, or a division of our interests. *I told him we have not only our own interests at stake, but also the ones of our German house and the I.G.* [Italics added]⁴

DuPont had its own agreement with Imperial Chemical Industries. Rohm & Haas was concerned lest Imperial Chemical Industries upset the arrangement by selling in the United States. DuPont reassured Rohm & Haas:

. . . I.C.I. reserves to itself the right to sell in the United States in emergency cases, but Mr. Wardenburg assured me that although this has been in force for many years, such an emergency has never arisen. . . .⁵

Rohm & Haas, however, was not convinced and could not accept the various proposals of duPont or assurances about Imperial Chemical Industries, because they had "*responsibilities to other parties to whom I have to explain the situation and I do not see how I could do this without embarrassment.*"⁶ Finally the duPont company wrote to Rohm & Haas (Philadelphia):

As pointed out to you in our letter of March 5, I.C.I. retains the right to sell the patented products in this country. However, it happens that one of our principal men was able to visit the I.C.I. plant on a trip to Europe, which he was making in connection

with another matter. It was learned that their work in developing the marketing of the materials covered in our license agreement is along quite different lines than those which seem to us to be attractive in this country. We would assume from our observations, therefore, that there is little likelihood of their exercising the right which they retain to sell the products in question in this country.⁷

With this Rohm & Haas was convinced.

The purpose of settling the interference ran along with cartel tradition. Writing to the Philadelphia firm on February 22, 1936, Darmstadt said as follows:

Who has the advantage of this exchange? The party which at present or in the future has the technically most valuable inventions appears to be at a disadvantage because they will have to share their rights with the other party without compensation. Therefore, the incentive to push the development forward would be influenced, and only the party who could sell the cheapest would have any advantage. We believe that an arrangement of this type would only be justified if at the same time there were made an understanding concerning the market and price. It does not appear that there has been any discussion on these points with duPont.⁸

Darmstadt's belief "that an arrangement of this type would only be justified if at the same time there were made an understanding concerning the market and price" was answered by Rohm & Haas (Philadelphia):

Before going into the interference situation at all I had told the duPont executive who had made the overtures to us (Mr. F. A. Wardenburg) that it is necessary to consider what to do after we have exchanged licenses. I told them that they would have to stay out of the laminated glass field and the acrylic acid field, i.e., that they cannot expect any licenses from us in these two fields and that it is advisable to have an informal understanding how to act in the fields where both firms have the right to proceed. We arranged that in the case of products where we compete, we shall consult with each on prices, etc., in order to avoid destructive price cutting. *A matter like this cannot be put into the contract, because it would be against the law. We have to rely on our verbal assurances and our experience with duPont during the last fifteen years has proven that they can be relied upon to live up to an arrangement of this kind.*

Please treat this confidentially. [Italics added]⁹

Once the crucial point of creating a stabilized non-competitive cartel situation was agreed upon, it was arranged to concede priority on the patents. Rohm & Haas received the laminated glass patents, while duPont received the methyl methacrylate patent.

The American producers were now tied to the cartel. It was necessary to bring one more group within its orbit, namely, Imperial Chemical Industries, of London. This was done by an agreement between Rohm & Haas (Darmstadt) and Imperial Chemical Industries.

During the negotiations Rohm & Haas (Philadel-

phia) cautioned Darmstadt that, before any "satisfactory arrangement" was entered into, it would be necessary to check with duPont and Rohm & Haas (Philadelphia). Rohm & Haas (Philadelphia) was given complete information on negotiations, and on August 31, 1936, an agreement between Imperial Chemical Industries and Darmstadt was signed.

The agreement, in effect, provided for division of territories in which I.C.I. received the United Kingdom and the British Empire, while Darmstadt received Europe, including the U.S.S.R., except Holland, Denmark, Norway, and Sweden, which were to be common territory. When third parties entered non-exclusive territory, I.C.I. and Darmstadt agreed either to meet the competition or bring it within the cartel. Prices were to be fixed in the "free" territory.

In 1939 duPont discovered that Rohm & Haas (Philadelphia) had an excellent process for making cast sheets of methyl methacrylate, which had been kept secret from duPont. A supplemental license agreement was negotiated whereby Rohm & Haas (Philadelphia) and duPont cross-licensed each other on the new process. Since Rohm & Haas (Philadelphia) insisted upon the maintenance of its domination of the cast sheet field, and also was the owner of the most important patents, it pledged duPont to manufacture no more than one-half the quantity Rohm & Haas might make in any given year.

By 1940 the United Nations, under the pressure of war with Germany, were beginning to order enormous quantities of Lucite and Plexiglass. DuPont, because of the restriction under the contract, was unable to expand. Thus, during one of the most critical periods in our history, when our very security depended on straining every muscle to increase production of a vital material, our greatest chemical company was forced by contract to restrict its output. Thereupon, the general manager of duPont wrote the following interoffice memorandum dated January 15, 1941, indicating the drastic lengths to which duPont was willing to go to free itself of the "dead hand" of this agreement:

*I explained to Mr. Haas that we were booked up solid until October of the present year under this restriction and asked him whether he wanted us to tell the Government that we were limited by the license or whether he preferred to lift the restriction. He agreed to lift the restriction during the present emergency. [Italics added]*¹⁰

DuPont apparently was not averse to calling in the law when its interests were served thereby. Although duPont did not resort to complaining to the Government, the Government nevertheless stepped in with a Grand Jury proceeding, and both Rohm & Haas (Philadelphia) and duPont were indicted on August 10, 1942.

The Rohm & Haas Company of Philadelphia oc-

cupies a very uncomfortable position at present. Its early history indicating its German origin, and the seizure of some of its stock by the Alien Property Custodian during the World War have already been recounted.

Sensitive to all charges impugning its patriotism, the officers of Rohm & Haas (Philadelphia) let no stories in the press or charges before Congressional committees go unanswered. This defense is accomplished with gusto and vigor. The charges arise, however, not because of a lack of patriotism, but from the unfortunate position in which cartel members find themselves when entangled with nationals of a country where the cartel system is a weapon of war itself.

In addition to the agreements with I. G. Farben and Rohm & Haas (Darmstadt), Rohm & Haas (Philadelphia) also has agreements with Theo. Goldschmidt, another German company. With the latter company Rohm & Haas (Philadelphia) entered into an agreement in 1934 covering Tego gluefilm, an adhesive extensively used in the production of plywood, especially for aircraft and marine vessels. Rohm & Haas (Philadelphia) had other agreements with I.G. and Rohm & Haas (Darmstadt) concerning tanning agents. All these agreements had one common characteristic: *The world outside the United States was German territory.* As a result, the German companies had achieved, as in dyestuffs, a very large system of distributive outlets throughout the world—especially in Latin America.

The declaration of hostilities in September 1939 found the German plans ready for execution. Rohm & Haas (Philadelphia) was notified by its German cartel associates that it now had permission to ship to Mexico, Central and South America. In some cases it was given permission to sell to Japan, China, and Siam.

Rohm & Haas (Darmstadt) received royalties which amounted to a substantial share of the profits on these sales of Plexiglass, I. G. Farben protected its network of distributive outlets, and Theo. Goldschmidt protected its customers. *In all cases the business of supplying these markets was to revert to the Germans at the conclusion of the war.* Every item sold under the arrangement helped frustrate the British blockade of Germany. The correspondence of I. G. Farben with Rohm & Haas in particular is worth quoting:

I. G. Farbenindustrie Aktiengesellschaft
Frankfurt (Main) 20, den 22nd Dec. 1939

Abt. G. Kp/Br.
Mr. Otto Haas,

c/o Messrs. Rohm & Haas, Philadelphia.

Dear Mr. Haas: The arrangements which we have with your firm about synthetic tannings limits the markets where you are free to sell your synthetic tannings to the United States of America and Canada, whereas we supply the rest of the world. In previous years we have in some exceptional cases allowed you

to make certain shipments to the South American markets. Most of these markets can at present not be supplied by us regularly and in order to allow our friends in those markets to maintain their position, we should very much appreciate if you could supply them which certainly would also be in the general interest of the business in synthetic tannings.

We have therefore informed our friends in the South—and Middle American States to approach you through the Advance, Solvents Chemical Corp., New York, in case they are in need of synthetic tannings and Tamol and hope you will be in a position to supply them; only in the case of Mexico, where our business friends report you already for Koreon, you will receive enquiries directly.

I take the opportunity to send you my best wishes for a merry Christmas and a happy New Year.

With best regards, I am yours very sincerely,
W. E. KEMP.¹¹

Replying to this letter, Otto Haas stated:

I am in receipt of your letter of December 22nd. Of course, we shall be glad to follow your wishes in every detail.

I attach herewith a list of the shipments which we have already made to Bogota, Lima, and Rio. These orders have come to us entirely unsolicited, and we thought that it was to your best interest to fill them.

I wish to assure you that no matter who is doing the shipping we shall revert to the status quo antem as soon as normal conditions have been restored.

The thought uppermost in my mind is to serve you in the most faithful and most efficient way possible in this emergency.

Yours very truly,
OTTO HAAS.

9. DRUGS AND GEOPOLITICS

THE pharmaceutical business occupies a unique position in the realm of German cartel activity and economic warfare. Its significance is derived from the absolute dependence of tropical countries on the constant use of medicines to stave off disease, and tropical countries are the most fertile territory for the ravages of plague. The experience of Bayer 205 bears witness to the relationship of pharmaceuticals and the tropics in Germany's plan. As already noted, Germany's earlier experiment in warfare during the first World War placed great reliance on the control of pharmaceutical preparations. The activities of Bayer Company during that war had extreme value to Germany's schemes of aggression.

The Sterling Products Company, which purchased the Bayer interests confiscated by the Alien Property Custodian, chose to dispose of the dyestuffs branch and retain for its own operations the pharmaceutical assets. Most important of these was the Bayer Cross, the long-established trademark of Bayer of Germany. Throughout the world this trademark had received acceptance as a representation of the traditionally high quality of

German chemical commodities, and as a result, the German company built up a very profitable business.

The acquisition of the Bayer properties by the Sterling Company had hardly been accomplished when the international scope of operations of the Bayer Company became apparent. Although Sterling had the right to use the Bayer Cross in the United States because of its purchase from the Alien Property Custodian, its title could hardly be called clear in other countries of the world. This was particularly true in South America, where the German Bayer interests were poised to strike at Sterling's legal title to the Cross. Rather than risk endless litigation in a continent where the Germans had already made deep inroads, Sterling decided to avoid this difficulty at all costs.

On October 28, 1920, therefore, Sterling made its first agreement with *Farbenfabriken Vorm. Friedr. Bayer & Company of Leverkusen, Germany*. This company was, of course, a member of the *I. G. Farbenindustrie*. The preamble to this agreement reads as follows:

In order to develop a large business in South and Central America and Mexico (hereinafter called the Territory) the two parties have concluded the following heads of Agreement for the purpose of particularly exploiting Acetylsalicylic Acid (Aspirin) or its compounds in connection with the trademark Aspirin, the trade name Bayer and the trademark referred to

as the Bayer Cross Mark or under any other trademark or name in the Territory and also for dealing with other goods as hereinafter mentioned.¹

While it related basically only to aspirin, the agreement broke the ground for future dealings. In effect, the agreement provided that competition between Bayer and Sterling in South America was to be eliminated, and that the company with the cheapest costs would supply the market. Profits on this business were to be divided, with 75% going to the Germans and 25% going to Sterling. For almost a generation this proved to be a highly profitable agreement for both parties. It is interesting to note that at no time during this period did Sterling sell in South America, Bayer supplying the market until the outbreak of Global War.

With the initial resolution of the difficulties between the two parties, the road was paved for future agreements, and in 1923 a second agreement was entered into between the Sterling interests and the I. G. Farben interests, covering practically the entire field of pharmaceuticals. This included:

Substances used in medicine or pharmacy, perfumery and toilet articles of all kinds including cosmetics.

Products used or intended to be used for agricultural, horticultural or veterinary or sanitary or disinfecting or preservative purposes or insecticides or germicides.

Substances or articles used or intended to be used

for photographic (except photographic papers) or scientific purposes.

Chemicals or substances of any kind to be used in the production of any of the foregoing products.²

In addition, territory was divided so that Sterling received the United States, which included Puerto Rico, the Philippine Islands, the Hawaiian Islands, and the Panama Canal Zone, as exclusive territory free from I. G. Farben's competition. The agreement was to last for fifty years. Coincident with this arrangement, I.G. received a 50% interest in Winthrop Chemical Company, a subsidiary of Sterling which marketed most of the pharmaceutical products other than aspirin. I.G. protected its other cartel agreements in the United States by specifically exempting a number of products.

. . . all photographic articles, including photographic and moving picture papers, heliographic papers, artificial silk and artificial silk products, dyes and colors, carbide and carbide derivatives and products made from carbide derivatives, as, for example, acetic acid, acetic acid anhydride, acetone, acetaldehyde, butanol, organic products used in the varnish, lacquers, paints and solvents industry, as, for example, artificial resin, camphor and camphor substitutes, softeners, etc., also products in which wood pulp or cotton are component parts, as for example acetyl- and nitro-cellulose, viscose, etc., heavy chemicals, prussic acid, cyanide of sodium and all other cyanide compounds, *and also excepting all products regarding*

*which the I.G. is prohibited from selling by now existing contracts with others in the United States.*³

In 1926 this agreement was amended to include all of I. G. Farbenindustrie, which was reorganized at that time. From time to time other agreements were entered into whenever particular exigencies arose.

Once again the Alien Property Act of 1917 was nullified. In the plans of the Germans for economic as well as military domination of the world, South America has always loomed high in their calculations. It is not without significance that the first agreement between Sterling and I.G. related specifically to South America.

Sterling, of course, not unlike many American corporations, was fully aware of the commercial advantages of an agreement with the German I.G. interests. Like almost all American corporations, it knew little and cared less about German plans for international hegemony. The main question rested on the pivot of profitableness and freedom from German competition. This arrangement was specifically desirable from Sterling's point of view since it was new to this business, and the Germans were "old hands." A deal was certainly preferable to competition.

While some of the American corporations which became entangled with German interests may have been mere dupes, German cartels did not always rely on native firms to carry out their ends. In certain instances,

the Germans set up their own subsidiaries, which were then camouflaged to look like independent concerns.

Although it is difficult for one to think of sex hormones as an important industrial product entering into international intrigue and economic warfare, it nevertheless occupies a special position in just that field. Its history demonstrates almost perfectly the utilization of a device based upon patent controls, specialized skill, and legal subterfuge as a method of turning the cartel into an instrument of warfare directed against the United States by Germany.

The Schering Corporation of Bloomfield, New Jersey, has, for the past few years, been recognized by doctors as the manufacturer of the finest quality sex hormones in the United States. Its scientists contribute to various technical periodicals, and its laboratory is considered to be the best of its kind in this hemisphere. In effect, as far as high quality sex hormones are concerned, it has built up a monopoly.

The German control station, which directed the affairs of the Schering Corporation of Bloomfield, was Schering A. G. of Berlin, a key factor in the economic war, and one of Germany's most important pharmaceutical and chemical manufacturers. Under the aegis of Dr. Julius Weltzein, former president of Schering A. G., Schering built up an export system throughout the world which had as its purpose not only the enlargement of Germany's foreign trade but also the develop-

ment of what might be called "colonial settlements" in the form of distributing agencies. These were used as outlets for Schering A. G.'s products, and at the same time were the foci of German political intrigue in various regions of the world, in particular, the British Empire and Latin America. With the advent of Hitler in 1934, the Schering outlets were cleansed of any non-Aryan influence, and were staffed with either loyal or Nazi Germans. By 1938 this cleansing had included Dr. Weltzein.

It is reputed that before this war Schering's largest business outside of Europe itself was in Latin America. It is the largest German exporter of pharmaceuticals, medicinal specialties, which include sex hormones, vaccines, anti-venereal toxins, laxatives, anti-shock serum, fine laboratory, and plant protection chemicals. Its export business is large enough to accord it a principal place in Germany's system for securing foreign currency, which has been called *devisenbringer*.

Schering A. G. was not without fear of competition throughout its empire by American producers. It therefore was a prolific applicant for patents in the United States Patent Office, and in 1929 it established a subsidiary in the United States known as the Schering Corporation, not only as a means of protecting its empire but as a device for exploiting the market in the United States. The Schering Corporation, finally domiciled in Bloomfield, New Jersey, was one of the few Schering

satellites which did its own manufacturing, and so developed that it was a miniature replica of Schering A. G. of Berlin.

The Schering Corporation, protected by patents and supplied with the ex-president of Schering A. G., who became a refugee in 1938, as its own president, prospered so that in 1940 its profits were estimated to be \$2,350,000. Considering its capitalization of \$499,000, this was an excellent business venture.

Toward the close of 1937, Schering A. G. of Berlin, recognizing the delicate state of the international situation, did what was characteristic of many other German enterprises during this period—it transferred the Schering Corporation of Bloomfield's ownership to Swiss interests, which are in effect controlled by the Swiss Bank. At the same time a contract was executed between Schering A. G. and its daughter company Schering Corporation, by which the latter agreed to buy all basic raw and intermediate materials from the parent concern, and not to export its own products except with the consent of the latter. These stipulations applied not only to materials produced in Germany but also to products from other parts of the world, such as Holland and British India, with the result that the Schering Corporation was forced to pay an added toll simply to maintain the position of Schering A. G. As usual, in accordance with this agreement, Schering of Bloomfield was not permitted to export outside the United States.

The effect of this served Germany's interests well. In the first place, it disguised the true ownership of Schering of Bloomfield with a Swiss cloak. Thus, should the United States and Germany be at war with each other, there was at least a chance of frustrating the operations of the Alien Property Custodian. In the second place, it circumscribed the American Schering's operations to preclude any interference with the German Schering's international markets.

There have been many who have maintained that the sale of American Schering to the Swiss was a bona-fide transaction. Whether or not this was true can be judged by the conduct of American Schering Corporation since the outbreak of war between Germany and Great Britain.

At about the time that Great Britain and Germany began hostilities the Schering A. G. of Germany advised the Schering Corporation of Bloomfield that the latter could now export to the markets belonging to the German corporation's sphere. There were, however, certain restrictions:

- (1) Schering of Bloomfield would export to those portions of the world denied to Schering A. G. by the British blockade, with the understanding that this was either for the duration of the war or until further notice from Schering A. G.;
- (2) the material sold outside the United States was

to be labelled with the Schering A. G. trade-mark;

- (3) there was to be a division of profits on this business, with Schering A. G. receiving the larger share;
- (4) Schering of Bloomfield was to deal only with the Schering A. G. agencies in South America or other parts of the world. Under no circumstances was Schering of Bloomfield to set up its own agencies.

The effect of this arrangement is apparent:

- (1) It provided a means for Germany to circumvent the British blockade;
- (2) it provided exchange for the German agencies in South America which were well staffed with Nazis, enabling them to continue political and other subversive activities;
- (3) it maintained the German monopoly of manufacture and distribution of these medicinal commodities in South America;
- (4) it prevented the establishment of an American distributive setup for these materials in South America.⁴

The Germans prepared for retaliatory measures long in advance. When the Black List was issued including all of the known German Schering agencies in South

America, dummy firms were already in position to function in the place of the blacklisted parties. The Schering Corporation of Bloomfield continued to put German labels on the goods shipped to South America.

Because of the effect of monopoly created by the Schering Corporation in the United States, highly critical materials such as anti-shock serums and others could only be purchased from one source—the Schering Corporation.

The Department of Justice intervened and smashed the American Schering's operations in the South American market. Shortly after December 7, 1941, the Alien Property Custodian seized all assets of the company. This seizure could not mitigate, however, the adverse effects deriving from the careful preparations of Schering A. G., a province in the dominion of I. G. Farben.

10. PRIVATE GOVERNMENT AND INDUSTRIAL MUNICHS

“AS a principle in which the rights and interests of the United States are involved . . . the American continents . . . are henceforth not to be considered as subject for future colonization by any European power. . . . We should consider any attempt on their part to extend their system to any portion of this hemisphere as dangerous to our peace and safety.” These clarion phrases of the Monroe Doctrine strike the one consistent note of American foreign relations.

Promulgated over a century ago, this doctrine excluded for all time any effort by foreign imperialism in Europe or the Orient to gain a political foothold in the Western Hemisphere. It has been a cornerstone of our national policy toward South America. The slightest suggestion that it was in danger has been sufficient to arouse both government and public. What we do not realize is that, for the past twenty years, this principle has been systematically subverted by the establishment of economic colonies subject to German political control in Central and South America. In accordance with

the German Plan, the penetration of South America was carried out by "diplomacy and trade."

South America has always been a plum in German eyes. Under the Kaiser's regime, German representatives and commercial attachés were trained to study every nuance of thought and custom of the Latin countries. Germans who went to South America spoke impeccable Portuguese and Spanish. They married into the best families, and became a part of the native culture. But at all times the military aspirations of the Fatherland were kept in mind. Profits from the sale of goods, and detailed surveys of the wealth and resources of our Southern neighbor were sent back to enrich and to inform both German industry and government. When the Nazis started their "Auslands" organization, the basic personnel and data were at hand. To the training of German agents and diplomats who were to be sent to South American countries, the political and racial theories of Nazism were added. Dr. Rosenberg himself, the official philosopher of Nazism, supervised this training. "Diplomacy and trade" now meant Nazi penetration. In Nazi schemes, this means prelude to invasion.

The danger is real. Although the Monroe Doctrine has always been the measuring-stick of our armies and navies, its main reliance has been the width of the oceans. Airpower has narrowed the ocean barrier. Generals Arnold and Eaker subscribe to a statement made by an American air expert, who said:

If Germany flew 1,000 bombers to Brazil, and landed them on airdromes prepared by the millions of Germans now resident there, supplying through the air the necessary bombs and fuel, it would be necessary for the nation which would enforce Western Hemisphere defense to drive those bombers out. But no land or water-borne army can approach Brazil under the sphere of influence of those 1,000 bombers until the bombers have first been destroyed or driven out. That means, then, that the nation which would dislodge those German bombers must have an air force with sufficient range to destroy those bombers on their Brazilian bases.

If such an air force were available and were directed energetically at those Brazilian based Europeans, they might be flown again home to Germany, or be reinforced. The ensuing air engagement would largely determine the issue. Certainly it would settle the first or the air phase. This is how easily an aggressive foreign power could test our doctrine of hemisphere defense.¹

When war broke out, the United States faced two grim prospects: the British fleet might be destroyed, and South America invaded.

Isolationists demanded that we stay out of Europe's squabbles. Interventionists viewed with alarm. The country was in an uproar of disunity.

Underneath all this chaos an orderly development of Germany's economic war was unfolding. It will be recalled that, throughout the maneuvering of I. G. Far-

benindustrie in the United States to regain their position in the chemical industry, they were always careful to restrict their American affiliate from entering the world markets. When World War II broke out, England's main weapon was the naval blockade. This normally would have meant that Germany's world markets would be lost, at least for the duration. Germany, however, was prepared for this attack.

During the twenty preceding years, a network of distributing outlets for German goods was established throughout the world. Denied colonies by the Versailles Treaty, Germany was able to circumvent this obstacle through clever manipulation of patents, agreements with competitors to divide territory, which generally left Germany with the lion's share of the world to exploit. Not without effect in these arrangements when the Nazis came to power was the barter system of trade. As a result Germany was given a relatively free hand to set up a vast and cleverly manipulated system of distribution. Especially effective and important was this network in South America. The size of the Blacklist, on which 7,500 names now appear, shows the dimensions of the bridgehead.

Germany did not have to fight for the South American market. The entire continent was handed over to German cartels by American businessmen. The consequences of this investment of South America by German interests are both military and economic. We are

suddenly awakened to the realization that economically we have been flanked, and that this fact is a threat to our military security. How strong the grip of German economic interests in South American countries has been demonstrated both in Chile and in Argentina.

What must be understood is that German preemption of South American markets was possible only because American concerns agreed not to compete in that area. What our government would never have agreed to, cartels could do: give consent and support to the institution of economic and financial salients which became outposts of Germany. In almost every instance in which South America was reserved by cartel agreements to German monopolies, their subsidiaries and agents were the entering wedge by which it was hoped to accomplish two ends: first and foremost, in the war which was to come, economic control in South America could be used to defeat the blockade of Nazi exports. The export of German goods, important to German commercial prestige, could be maintained in plain view of the Latin-American countries. English and American influence would correspondingly be injured. Thereby, extension of German power over the market structure of South America became more easily the nucleus for German propaganda and espionage. Because Germany and I. G. Farben were ready with plans based on Total War and charted long in advance, American companies are faced

with the appalling task of overcoming the power of the German commercial barrage.

Democratic government has no adequate defense against this type of subterfuge. Dollar Diplomacy long ago was supplanted by the Good Neighbor Policy. But neighborly friendship unsupported by economic ties is a fragile bond. Our government could not form such links because the cartels had made other dispositions.

The fact that cartel policies could frustrate the desires of the American government is the clue to their real nature. Cartels are private governments. To American concerns, cartels could grant stability and profits. To the Germans, cartels were protégés of the Reich—precursors of conquest.

Perhaps the most striking correspondence between the character of cartels as private governments and the powers of sovereign states is in the conduct of foreign affairs. A sovereign political entity is, in the last analysis, one which can subscribe to treaties and wage war. Cartels do both. The difference lies in purpose and responsibility.

All commitments of government are made in national interest and for the purpose of promoting general welfare. When war is necessary to their survival, governments embark on military ventures for the purpose of maintaining the integrity of the nation which they serve. In the case of cartels, treaties are made for private, not public, ends. The consequences of their acts

may be vital to society, but their aims are framed with reference only to their own welfare. In the purview of cartels, the whole world economy is an area of exploitation. From this perspective they determine spheres of influence and divide hemispheres by treaties which require no consent either from the public or from legal governments.

When, for instance, the United States enters into a treaty with a foreign nation, its acceptance must be ratified with the advice and consent of two-thirds of the Senate, in the light of national policy. When a monopoly enters a cartel agreement, which equally affects the foundations of our national economy, no voice can be raised to question or approve. In fact, it is characteristic of cartel agreements, which, because of their economic importance, may be of greater moment than political understandings, that they are arrived at secretly and maintained in silence. There are no "open covenants, openly arrived at." There could not be, for otherwise it would be too evident that cartel agreements transcend any standard of national interest. Indeed, in one respect, the contracts executed by cartels are stronger and more durable than any treaty between governments, for cartels by prearrangement discount the contingencies of war. No democratic government could afford to do this. The only eventuality which cartels need or do recognize is that of *force majeure*, pressure exerted by law which cannot be evaded or foreseen.

Force majeure was the legal protection which German concerns invoked whenever their obligations under cartel contracts interfered with their role in German expansion. Nothing could stand in the way of German national interest. This contrasts in sharp relief with the industrial defeats suffered by the democracies because of "loyal adherence" to cartel agreements.

By their nature, cartels are paternalistic and totalitarian organizations, and their policies consequently cannot be thought of as truly capitalistic. Capitalism is based on freedom of enterprise; cartels are based on rigidity, stabilization, and private economic planning. They are the forerunners of the managerial revolution. Because they must play safe and avoid risk, they cannot be progressive. They fear two things, competition and technological change, for their existence depends upon concentration of ownership and control over patents, raw materials, and resources.

The greatest technological revolution of modern times inhered in Germany's plans for conquest. Every manifesto of discovery made by German industry was a step toward power, but each new development ran counter to the security of democratic businessmen. Not desiring to compete with such ruthless opponents, they were easy targets in the industrial offensive. Every time German industry presented a new development which threatened the financial stability of democratic monop-

lists, an industrial Munich ensued. Germany was appeased with territorial grants, royalties, and ever larger segments of world industry over which it might rule. Each conquest was a springboard for the next.