

INTRODUCTION

The oil production of the world was dominated at the beginning of the twentieth century by Russia (51 per cent) and America (43 per cent). Kerosine for heating and illumination was the principal petroleum product (65 per cent of American refinery throughput). American wells were located in Pennsylvania, New York, Ohio, Kansas and Indiana and its industry was controlled by the Standard Oil Trust which, before its dismemberment in 1911, accounted for some 84 per cent of refinery output, 86 per cent of total exports and 85 per cent of domestic sales of oil. By 1914 over a decade after Texas and California had been discovered as major new oilfields, American oil constituted 65 per cent of world production. The Russian oil industry was principally centred in the Baku area, with Nobel interests dominant. The Baku fields peaked in 1901, but, although more oil was discovered in the Grozny and Maikop regions, the Russian share of world oil production dropped to 16.4 per cent in 1914. Generally American crude oil was light and better for benzine and kerosine, whilst that of Russia was heavy with the refining of kerosine being accompanied by much fuel oil for which uses in industrial furnaces, railways and shipping were developed.

Thus even in the opening years of this century a variation in the pattern of production is noticeable and in the market proportions of the principal producers and the companies associated with them. This is part of the dynamic of the oil industry, part of the process of almost continuous change. See Figure 0.1 and Appendix 0.1.

In 1890 as a result of the discovery of oil in Sumatra the Royal Dutch Company was formed, of which Henri Deterding, a former bank manager in Penang, became the general manager in 1900. In 1903 it was operating a refinery in Rotterdam and had established a European presence. In 1892, Marcus Samuel, engaged in a general export–import business and having connections throughout the Far East, shipped a cargo of Russian kerosine through the Suez Canal in a specially constructed tanker, the *Murex*. The following year he established the Tank Syndicate which was transformed in October 1897 into the Shell Transport and Trading Company. Mean-

Cambridge University Press

978-0-521-24647-7 - The History of the British Petroleum Company: Volume 1: The Developing Years 1901-1932

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Excerpt

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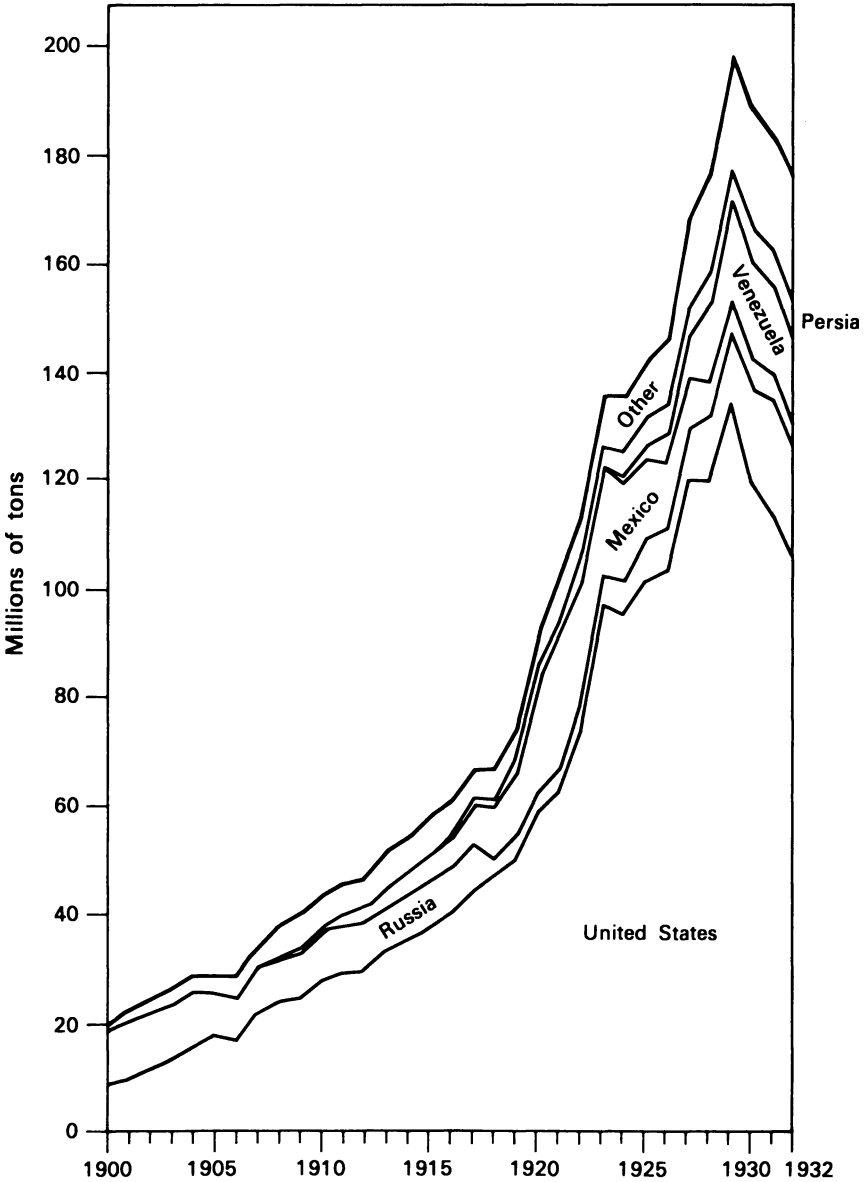


Figure 0.1 World crude oil production 1900–32 (millions of tons)

Source: *Petroleum Almanac*. Barrels converted to tons at the rate of 7.45 barrels = 1 ton.

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while Samuel had ventured into exploration and a field was discovered at Kutei in Borneo in February 1897. By 1900 the East Indies had a small share of world production (1.5 per cent) and two developing oil companies. Elsewhere in Asia, oil production in Burma was a little less than 1 per cent of the world's total but its sales of kerosine were important in the Indian market. Up to 1886 American oil exports had supplied most of that market, but at the turn of the century Russian kerosine accounted for 60 per cent of supplies there, whereas the Burma proportion was just 3 per cent, but by 1905 Burma had taken 48 per cent and in 1914 52 per cent of the market. The leading company was the Burmah Oil Company organised in 1886 by Scottish businessmen and reconstituted in 1902 under the direction of a Glasgow merchant, David Cargill. By 1914 Burma production was 2 per cent of the world total.

The only other oilfields of any importance were in Hungary and Rumania, where a small production was undertaken with American drilling equipment in the early 1880s. In 1914 production from the two areas represented some 7 per cent of world production. As in the Russian oil industry, where foreign capital represented the greater part of investment in 1914, \$130 million out of \$214 million, with British funds contributing \$86 million (66 per cent of foreign investment or 40 per cent of total investment), so in Rumania foreign participation was considerable. Thus out of a total capital investment of 185 million French francs, Germany contributed 74 million, France 31 million, Holland 22 million, Rumania 16 million, the United States 12.5 million, Belgium 5 million, the United Kingdom 3 million and other interests 6.5 million. In Hungary the Aktiengesellschaft für Oesterreichische-Ungarische Petroleum Produkte (Olex) handled oil exports.

The extent and number of oil production areas in 1900 were limited and so too were the areas of major consumption. The United States was virtually a closed market. India absorbed a large volume of kerosine. Europe represented the largest and most profitable concentration of consumption and the scene of the most intense competition. As a result of technical innovations largely emanating from the Nobel interests in Russia and the Standard Oil group of companies in the United States, refining processes became not only more accurate in distillation and chemically more efficient, but they became continuous in operation. Pipelines were pioneered leading not only to monopolies over the distribution of products, but much cheaper transportation costs, particularly from 1881 with a six inch line from Pennsylvania to the Atlantic Coast and in 1889 with an eight inch line between the oilfields and refineries in Baku and the port of Batum on the Black Sea. Railway tanks also cheapened deliveries in bulk, but the development of marine transportation, particularly as a result of

Introduction

Nobel's pioneering work with the *Zoroaster*, commissioned in 1878, gradually transformed the market relationships, which were no longer to be confined to localised conditions, but involved a global context of supply and demand.

Economies of scale became possible with growing emphasis on efficiency of operation to maximise the return on all the constituent elements of the crude oil produced. In this respect the technical proficiency in the oil industry had already passed by 1900 from Russia to the United States, where refining processes were being improved. This shifting pattern of technical and economic factors had a major impact in the first decade of the century not only on the companies producing oil but on those marketing it, fostering a growing tendency to integrate the different operational activities within a single functional organisation. Thus Marcus Samuel, of Shell, integrated back upstream into production from his distributing base, whilst Henri Deterding in Royal Dutch integrated downstream into marketing from his production.

As this process was taking place, so the relative strengths of the companies within the different geographical regions of the oil industry were changing according to competitive pressures. This was particularly apparent in the first decade around the turn of the century. There were many trading agreements, amalgamations, mergers, associations, no less than bankruptcies and liquidations. There was a growing interest in banking circles, like the Rothschilds and Deutsche Bank to participate in oil investments, less in funding exploration than in promoting distribution. Among the most notable of these with profound commercial consequences was the creation of the Asiatic Petroleum Company in May 1902 between Royal Dutch and Shell, with the participation in June of the Rothschild interests after years of intermittent discussion and the rejection of separate offers of close cooperation by both Samuel and Deterding in December 1901 from Standard Oil. The different changing fortunes of both companies were reflected in the formal amalgamation of April 1906, in which Royal Dutch interests predominated with 60 per cent while those of Shell represented 40 per cent.

In 1894 a tentative association was formed in Russia between the major Russian oil interests, Nobels, Rothschilds and Mantashev, to cooperate in the marketing of petroleum products within certain defined geographical areas, in response to Standard Oil's aggressive marketing policy. Between 1897 and 1905 there was fierce competition and frequent 'price wars' between Shell, Royal Dutch, Standard Oil and Burmah in eastern markets of varying degrees of intensity. There was little permanency of alliances, except for mutual Shell and Royal Dutch objectives from 1902. A commercial truce was declared in 1905 with an agree-

Introduction

ment between Burmah and the Asiatic Petroleum Company to share eastern markets.

In 1906 Samuel found himself overcommitted, with the collapse of expectations in Texas and revolutionary disturbances to Russian supplies, and unable to finance his interests in the growing production from Rumania. The Deutsche Bank, to protect its European oil interests from increasing Standard Oil competition, made an alliance in July 1906 with the Nobels and Rothschilds to form a massive oil conglomerate, the Europäische Petroleum Union. This was composed of many minor European oil groupings, including that of the British Petroleum Company Ltd, which represented the Union in the United Kingdom, where it contracted to distribute refined products from Royal Dutch-Shell following their merger in 1906. Some of the principal oil companies not only became involved in marketing arrangements – more or less competitive truces – but they began to set up foreign subsidiaries for marketing, as Standard Oil had done as early as 1888 with the Anglo-American Oil Co Ltd in the United Kingdom, or for production with Romana-Americana in Rumania in 1904. Deterding too, with Royal Dutch-Shell developed a more forthright strategy by initiating marketing in the United States in 1912 and purchasing oil territories in California in 1913. With the foundation of Astra Romana in 1908, Royal Dutch-Shell possessed Rumanian production, with the acquisition of General Asphalt in 1913 it had rights to properties in Trinidad and Venezuela and by its take-over of Rothschilds' Russian concerns in 1913 it had consolidated a formidable network of world oil interests.

It is against this general historical background that William Knox D'Arcy, an Englishman, who had made a fortune from a successful Australian mining venture, was offered in 1900 the chance of acquiring an oil concession in Persia, by a cosmopolitan Persian official, General Antoine Kitabgi, through the introduction of a former British Minister in Persia, Sir Henry Drummond Wolff. D'Arcy was prepared to take the risk in floating an uncertain enterprise to explore for oil. It was simply a personal initiative for profit. It is a measure of the later fortuitous importance of D'Arcy's concession that the most machiavellian of motives have been presumed to account for his investment. In reality the skills of the geologist and driller discovered oil, not the imagination of the polemicist or the gamble of the speculator.

Persian national authority was then weak; trade was limited and resources scarcely developed. The unfortunate Qājār dynasty was declining, its administrative structure inadequate for effective government by the end of the nineteenth century. The hopes of a small but dedicated reforming movement were confused by the rival attractions of older traditional

Introduction

practices and modern secular concepts. The agony of choice was exacerbated by the presence of an alien industrialising force, representing for some an essential development of natural resources, but for others an intolerable affront to national pride. The misfortunes of earlier foreign concessionary enterprises, whatever their justification, such as the Reuter Concession, Russian, French, Belgian and Austrian propositions, for roads, railways, utilities, factories, etc., had failed to make any positive contribution to Persian economic growth.

The natural Persian temperament was more tuned to the role of the *'munshi'*, the scribe, than that of the *'muhandes'*, the engineer. The practical application of technical knowledge had little prestige in the scale of values of Persian society at the beginning of the twentieth century, when there was no real experience of industry and much distrust of its possible effects. In consequence there was little understanding of the discipline and expertise required for a complex industrial operation and little opportunity to attain the necessary technical proficiency. The majority of the workforce was recruited from the predominantly tribal area of south-west Persia. More capable workers came from elsewhere, often minority elements of the population, Armenians, Jews, Chaldeans, to live in a region which was unattractive in comparison with the capital, Tehrān, or other major cities like Tabrīz, Mashhad, Isfahān or Shīrāz, which were climatically more congenial.

The British staff recruited by the Company arrived in Persia generally on three-year contracts to do a job for which they had been previously trained. They were expatriates, whatever their length of service, living in a part of Persia which had an ancient reputation, but which had been neglected. They created their own environment with their own social conventions and amusements. Inevitably an enclave mentality developed, marked by the absence of comparable Persian company, the isolation of the region in which they lived and worked and the lack of adequate communications with the rest of the country. Yet many of the staff overcame these obstacles and established life-long friendships with Persians. Some aspired to a wide appreciation of the arts, literature and customs of Persia, and travelled in the countryside. Yet their roots never penetrated deeply into the Persian consciousness, for the Company neither operated in a developed political environment, like the United States, nor in one which then had no real national identity, like the Dutch colonies of the East Indies. When central authority in Persia was weak and local autonomy strong, the Company suffered from insecurity and uncertainty, but when the central administration was effectively controlled as under Rizā Shāh, resentment against the Company became sharper. The earlier absence of stable political institutions prejudiced attitudes and complicated

Introduction

negotiations. Persian ministries were often little more than the temporary power bases of individual ministers. Political groupings depended upon personal followings rather than ideological conviction. The activity of the Majlis, the Persian Parliament, was mostly to approve legislation, seldom to propose it.

The Persian concessionary situation, therefore, naturally exerted a profound influence upon the Company's development. Because of the involvement of the British Government in the affairs of the Company and because of the Persian image of British intervention in Persian affairs, the activities of the Company were frequently suspected by Persians. Yet, whatever the particular circumstances effecting the relations of the Persian Government with the Company, it would be unrealistic to assume that they were unique or quite unrelated to concessionary developments elsewhere. As the balance of political power was changing not only as a result of the wish for self-determination or as a result of the ideological consequences of the Russian Revolution, but also because of the gradual weakening of colonialism and the rise of nationalism, so was the concessionary basis of economic relationships being challenged. In the same way as the system of Capitulations, which had regulated European relations with the Ottoman Empire since the sixteenth century, was abolished by the Treaty of Lausanne on 24 July 1922, so there was a rejection of concessionary subservience by the newly emerging national governments. The old order was changing, prefigured not only in Mussolini's Italy and Ataturk's Turkey in the mid-twenties, but also in the Mexican oil legislation of Presidents Carranza in 1916 and Calles in 1925. The action of Rizā Shāh in terminating extra-territorial rights in Persia in 1928 and in cancelling the D'Arcy Concession in 1932 are more than purely local in importance. At the same time, with the discovery of commercial quantities of oil in 1927 in Iraq and in Bahrain in 1932, the Company became involved in balancing the conflicting demands for increasing production from different countries, a concessionary juggling act.

The fascination and controversy which has accompanied concessionary affairs, however merited, has obscured the role which technology has played in the exploitation of oil. Early refining practice was based on distillation to produce kerosine. Dr James Young's British patent of 1850 was an important contribution and influential in the development of the Scottish shale oil industry. At first refining had been confined to batch processing, but from 1881 the Nobels in their refineries at Baku were continuously refining in a series of stills in which the residue, *astatki* (waste), was being used for heating purposes. Gradually *astatki* was upgraded, and as *mazout* (fuel oil) was used in burners as a substitute for coal in furnaces. In the latter half of the nineteenth century many chemists

Cambridge University Press

978-0-521-24647-7 - The History of the British Petroleum Company: Volume 1: The Developing Years 1901-1932

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[More information](#)

Introduction

had analysed oils and their properties, but practical application was delayed. Whilst the principles of distillation and shale oil refining were well-known to Andrew Campbell, John Gillespie and Sir Boverton Redwood and the other advisers to the Company, their practical experience of Persian crude oil was negligible before the commissioning of the refinery. The refining programme was based on what was commercially desirable, rather than what was technically possible. As a result of the failure to understand the particular physical characteristics and chemical constituents of Persian crude oil, the refinery at Ābādān took nearly three times as long to come on stream as had been anticipated. This delay strained the financial resources of the Company almost to breaking point and forced it to abandon its original marketing strategy and make restrictive contracts with Royal Dutch-Shell and most importantly to seek a contractual relationship with the British Government in 1912 for the supply of fuel oil, which led to the Government's shareholding in the Company in 1914.

The challenge to technical management which this early disaster stimulated was met by the early formation of a research organisation in 1917 and the crucial appointment of Sir John Cadman as Technical Adviser in November 1921, director, 1923, and Chairman, 1927. The technical dimension in the Company's operation was given priority. The results were remarkable. Within less than a decade the inefficient and wasteful refinery at Ābādān had been transformed into a vast complex of units capable of refining a range of products to a consistent quality economically by the most modern processes. From dependence upon a single field of unknown dimensions, yield and behaviour, which it was feared might decline like the Baku fields in 1901 or turn to water like the Mexican fields in 1920, detailed exploration and inspired interpretation of the geological and geophysical data revealed the extent of the Masjid i-Suleimān field (earlier known as the Maidan i-Naftun), and led to the discovery of the great field of Haft Kel in 1927 and the probability of other large fields at Gach Sārān, Agā Jārī and Pāzanun, which were not drilled in till the early 1940s.

It was not only that the quality of the products was improved and that the quantity of oil produced increased sufficiently to justify growing expenditure in relation to the duration of the concession, but that productive efficiency was exceptionally high owing to the scientific knowledge which had been gained of the reservoir conditions and the technical mastery by which wells were controlled. The encouragement of scientific curiosity, practical skills, careful observation and imaginative management resulted in the principles and practices of unitisation, the concept of an oilfield as a single production unit to be treated according to its own intrinsic characteristics. Development expenditure was thereby mini-

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[More information](#)

Introduction

mised, production costs reduced and the life of the field prolonged. This insistence on technical expertise and the observance of proper professional standards resulted in a tradition of the practical application of scientific principles to its operations which has kept the Company in the vanguard of the industry's exploration and production activities. The Company was able to offset its relative commercial weakness by the strength of its productive resources. The strength of its reserves position and the availability of its cheaper crude oil supplies gave it an importance and influence in international oil affairs out of all proportion to its market share. Thus, technical considerations, both negative and positive, accidental and deliberate, have exerted a decisive effect on the Company's growth.

The attitude of the British Government was important in the capital funding of the Company. Whilst the Government had no direct authority to interfere in the commercial affairs of the Company other than the prudent exercise of their responsibilities by the government directors, the commitment of government funds to satisfy the demands for increased capital raised not only questions of finance but also the nature of the Government's relationship to the Company. Was government money to be made available for operations outside of Persia? Was the Government interested in the commercial success of the Company or only in assured supplies of fuel oil for the Navy? The manner in which these matters were settled and the role of Lord Inchcape, one of the first government directors, produced compromise and flexibility which, while not directly answering the questions or ignoring the principles, provided a satisfactory result. The oil industry has always been capital intensive and the prodigious efforts of the Company in the early twenties severely strained its financial resources and precipitated a crisis in 1923.

The financial situation of the Company was influenced, apart, obviously, from its corporate performance, by the terms of the Concession which required that 16 per cent of the profits be paid to the Persian Government. The imprecision of the wording of the Concession, which could not have anticipated the subsequent expansion of the Company, was differently interpreted and caused disagreement. All efforts to find a mutually acceptable alternative basis on which to calculate royalties failed. At the heart of the controversy was the definition of profits, about which eminent accountants and counsel differed, and the substitution of the 16 per cent profit basis for a simple tonnage-based calculation. The continuing uncertainty was an accounting nightmare. It seriously exacerbated relations between the Company and the Persian Government and partly caused the cancellation of the Concession.

The Government insisted, as far as was practical, on self-financing out of retained profits, a policy that was fully observed from 1923 to 1966. So

Introduction

the Company did not need to pursue a generous dividends policy, which otherwise would have been more expected of it if it had been financed only from private capital. With the Government and Burmah dominating the ordinary share capital, there were no members of the public holding ordinary shares till 1922 to challenge this attitude which produced steady growth rather than spectacular results. The total finance employed from 1916 to 1932 increased seventeen times from £3 000 000 to £50 300 000; in the same time net income, exclusive of overseas taxation, rose from £200 000 to £5 300 000, having reached £7 500 000 in 1929. The average return on capital employed was 11.68 per cent between 1915 and 1932.

The relationship with the British Government is fundamental to any understanding of the Company's development. It is tempting with hindsight to project the image of a consistent government commitment to an oil policy based on a deliberate calculation of needs and resources and assume that the Company was cast for the leading role. There is little evidence to support such a hypothesis. There had been intermittent interest in the possibilities of oil-burning naval vessels in the first years of the century under the particular inspiration of Admiral Sir John Fisher, which was encouraged by the First Lord of the Admiralty, Lord Selborne. The Burmah Oil Company concluded a fuel oil supply contract with the Admiralty in 1905. Then enthusiasm for oil flagged and the Admiralty engineers reverted to coal-fired boilers. It was the renewed technical advocacy of Fisher and the exceptional political conviction of Churchill, which revived the idea of oil-fired engines in response to growing German naval rearmament. This view prevailed and precipitated the decision to authorise, against furious opposition, the 1912-13 naval estimates with provision for a flotilla of light fast cruisers. Such a new naval strategy depended upon a regular supply of reasonably priced fuel oil. Only the Company at that time offered to provide such a supply, although it was not intended then, or later, that there was to be any exclusivity implied in the agreement that was concluded. It was estimated that some 40 per cent of the naval needs would be covered in this respect, a volume which increased during the war.

The original arrangement with the British Government was, therefore, commercial in scope rather than strategic in intent and the government shareholding was investment protection, not an expression of political ideology. It was shrewd opportunism rather than deliberate policy, leaving many appalled at Churchill's conjuring and the mixing of his motives, which were forgotten at the outbreak of war in 1914. It was, moreover, Churchill, who, in 1924 at the prompting of Robert Waley Cohen, a director of Royal Dutch-Shell, attempted to unscramble the