Secretary of the Interior Wilbur estimates that over 450,000,000 cubic feet of gas are wasted daily in the Kettleman Hills District in California, although only six out of the thirty wells are producing. This waste of energy is twice the estimated future output of the Hoover Dam.[18] In the Cushing, Oklahoma, field more than 100,000,000,000 cubic feet were wasted during the year 1913—enough to supply the entire city of New York with fuel for that year. About 30,000 barrels of oil a day were produced in the field. In other words gas worth $75,000 a day was wasted to obtain a daily oil production valued at less than $25,000.[19]

Gas, moreover, contains a considerable quality of the more volatile petroleum components in vapor form. As many as four gallons of gasoline have been extracted from 1000 cubic feet of gas. It has been proven commercially profitable to extract it where the yield was one-sixteenth that amount.[20] Thus millions of gallons of gasoline are lost yearly in escaping gas at the same time that refiners exert every effort to make petroleum yield more gasoline through the "cracking" process.[21]

Obviously, conservation of petroleum, in the sense of a wise use of natural resources, coupled with maximum efficiency and minimum physical waste in their production,[22] is highly necessary and should be one aim of all programs for control of the industry.

HAROLD C. HANKE, '31.

OIL AND GAS LEGISLATION IN OKLAHOMA

Statutes controlling the production of natural gas in Oklahoma are closely related to those concerning oil, both in form and administration. There are several reasons for the connection. Geologists have established the proposition that it is the gas which is responsible for much of the pressure of the petroleum, both being contained in sand or porous rock formations. Hence waste of gas lowers oil pressure, often causes seepage of salt water into the oil-bearing strata, and prevents the owner from bringing all of the crude to the surface. Aside from this geological relation, there is the fact that they are combined commercially. Although all the Oklahoma statutes on the subject are contained in a single chapter of the General Laws,[1] there is no combination of oil and gas in any one section.

[18] Wilbur, OIL AND GAS J., Dec. 4, 1930.

[19] MANNING, YEARBOOK OF THE BUREAU OF MINES (1916) pp. 122-4.

[20] STOCKING, *op. cit.* n. 1, pp. 182-3.

[21] Thirty-nine per cent of the 375,000,000 barrels of gasoline produced in the United States in 1929 were obtained by "cracking." Jacques C. Morill, NAT. PETROLEUM NEWS, Dec. 7, 1930, p. 61.

[22] M. L. Requa, N. Y. TIMES, Apr. 7, 1929, xi:3:1.

[1] Comp. Stat. Okla. (1921) c. 68.

Because of the fugitive nature of the minerals, the ownership of neither oil nor gas can vest absolutely in the owner of the surface until taking. The total resources of both are indefinite, and while their demand is fairly ascertainable and steady, the supply, although usually in excess, has been very erratic. Hence the production of both has been made subject to control through similarly worded proration laws, and the unnecessary waste of each has been prohibited.

The state's regulation in its present form dates back to 1915. In that year the well-known Cushing pool was discovered and by May had reached a peak production of 305,000 barrels of oil a day.[2] A tremendous overproduction was the immediate result and the waste and proration legislation herein dealt with followed. The agency of control over both oil and gas is the state public utilities board, known in Oklahoma as the Corporation Commission.

The gas law will be considered first. In 1913 a statute had been passed prohibiting the taking of more than twenty-five per cent of the average daily flow of any natural gas well except by order of the Commission for good cause shown.[3] The enactments of 1915 added to this a prohibition against waste,[4] which is defined to include, among other things, the escape of commercial quantities of gas (2,000,000 or more cubic feet per day).[5] The proration law was also added, empowering the Commission to prescribe the proportional amount of gas which each well owner is allowed to take when the demand is so exceeded by the supply that the Oil and Gas Department deems action to be necessary.[6] It has not acted thus far.

The only important case involving the gas statutes dealt with conservation law passed in 1909,[7] providing that all wells drilled for natural gas should be shut in until such time as their product could be used for "lights, fuel or power purposes." Section 7921

[2] Logan, *Stabilization of the Petroleum Industry*, Bull. 54, OKLA. GEOL. SURV. (1930) c. 8.

[3] Comp. Stat. Okla. (1921) sec. 7913.

[4] *Ibid.*, secs. 7920, 7921, 7922.

[5] ". . . escape of natural gas in commercial quantities into the open air, the intentional drowning with water of a gas stratum capable of producing gas in commercial quantities, underground waste, the permitting of any natural gas well to wastefully burn, and the wasteful utilization of such gas."

[6] Other sections protect the strata against infiltrating waters, provide against flambeau lights, and for inspection of casings, pluggings. Comp. Stat. Okla. (1921) secs. 7907, 7908, 7924, 7925, 7934. Other regulatory statutes making pipe-line carriers and all purchasers of oil and gas "common purchasers" are not considered within the scope of this note, dealing primarily with conservation legislation.

[7] Comp. Stat. Okla. (1921) sec. 7964.

(*supra*) defining waste was also involved. By orders in 1920 and 1922, the Commission, acting under these statutes, prohibited the Quinton Relief Oil and Gas Co. "from selling any portion of the gas produced by it from the Quinton field for the purpose of using the same or allowing the use of the same for the manufacture of carbon black."[8] On application to the Supreme Court for a writ of prohibition, it was contended that the statutes of 1915 by necessary implication repealed that of 1909, and that the latter laws were void for uncertainty and at the same time bestowed improper duties upon a commission. The court held, however, that there was no conflict.[9]

Authority to determine what constituted "wasteful utilization," mentioned in section 7921 (*supra*) was declared vested in the Commission in terms sufficiently definite to rebut petitioner's contention that there was an unconstitutional delegation of power and that the statutes were void for uncertainty. The orders were sustained under the statutes of 1915 rather than under the earlier law, setting up three preferred uses for natural gas;[10] this no doubt because the Commission was not specifically mentioned in the latter.[11] It was shown that gas used in making carbon black was worth but a fraction of its value for other purposes, because of the complete waste of heat value.

Yet the decision does not go as far in the interest of conservation as it might had the constitutionality of the earlier statute under the Fourteenth Amendment been directly passed upon. That statute clearly contains more drastic regulation than was considered in the leading case of *Walls v. Midland Carbon Company*[12] where only well owners within ten miles of a town or large industrial plant were included in a prohibition setting up the comparatively wide field of manufacturing or domestic purpose. The Oklahoma case merely decides that the use of natural gas to make carbon black was properly prohibited as wasteful utilization, as was established by the *Walls* case.

Although the legislature has not gone much farther in the field of oil regulation than in that of gas, the regulatory activity of the Commission necessarily has been much greater.[13] The

[8] Order no. 1667 (July 19, 1920) and no. 2039 (Jan. 27, 1922).

[9] Quinton Relief Oil and Gas Co. v. Corporation Com. (1924) 101 Okla. 164, 166, 224 Pac. 156.

[10] Cf. note, Merrill, *Stabilization of the Oil Industry and Due Process of Law* (1929) 3 So. Cal. L. Rev. 401.

[11] Nor was jurisdiction to enforce the provisions of that act conferred upon the chief Mine Inspector. Love v. Boyle (1920) 72 Okla. 300, 180 Pac. 705.

[12] (1920) 254 U. S. 300.

[13] One statute on oil conferring special powers is section 7955, authorizing the Commission to investigate and ascertain a fair and correct price for

number of cases which have arisen under the flood of orders made has been small. Because of this many issues concerning proration are in doubt, but at the same time the situation reflects to the credit of the Commission and indicates that the producers recognize the advisability of stabilization by the state.

As in the case of gas, the oil statutes prohibit waste[14] of any possible nature, "economic waste, underground waste, surface waste and waste incident to the production of crude oil or petroleum in excess of transporting or marketing facilities or reasonable market demand."[15] The oil proration statute, which is identical with the gas statute, merely sets up the comparison to be drawn between the output of any common source of supply and the quantity which can be sold and refined.[16] There is adequate provision for enforcement.[17]

Under the oil statutes several distinct stages in the exercise by the Commission of its powers can be observed. The first effort to restrict production was in connection with the Cushing pool, already mentioned. When it reached its peak flow in May, 1915, an umpire was appointed to regulate production[18] and orders for part-time shutoffs were made, but they did not meet with the approval of certain producers and the attempt failed when the district court at Tulsa granted an injunction against enforcement of the orders. It may safely be said that the injunction delayed conservation in Oklahoma for approximately a decade, since very little action was taken until 1926.

---

crude and publish its conclusions. This has not been enforced and Veasey questions its constitutionality. *Legislative Control of Producing Oil and Gas* (1927) 52 A.B. A. REP. 577.

[14] Comp. Stat. Okla. (1921) sec. 7954.

[15] *Ibid.*, sec. 7956.

[16] Section 7957: "Whenever the full production from any common source of supply . . . of petroleum can only be obtained under conditions constituting waste as herein defined," then the owner "may take therefrom only such proportion of all crude oil that may be produced therefrom without waste as the production of the well or wells of any one person bears to the total production of such common source of supply (the field or pool)." The Corporation Commission is authorized to regulate so as to prevent inequitable or unfair taking.

[17] Any person may have a hearing before the Commission, which has full and complete powers to compel attendance of witnesses, and cite for contempt of its orders, "analogous to proceedings under its control over public service corporations as now provided for by law (sec. 7959)." All orders may be appealed directly to the Supreme Court, but there is no stay pending appeal (sec. 7960). There may also be a fine (up to $5,000) or imprisonment (not to exceed 30 days) (sec. 7961) and a receiver may be appointed for the violating properties (sec. 7962). Sections 8013 and 8014 empower a special Oil and Gas department under the Commission, which has all authority over conservation and drilling of wells.

[18] LOGAN, *op. cit.* c. 8, "Proration."

In 1921, at the request of producers in the flush Hewitt field, the Commission found that there was economic waste and made an order prohibiting the drilling of new wells.[19] Yet the orders had no marked effect and died a natural death from want of co-operation among the owners. The Commission intervened for the third time when voluntary control in the Seminole field failed in 1926, and 1927 saw no improvement in the overproduction situation. Matters took their usual course and in May, 1927, at a meeting of the operators it was decided that the discovery well was to be allowed unrestricted flow until the first of certain set-off wells was completed, at which time all wells were to be "pinched in" to one hundred barrels a day. Not all the operators signed this voluntary agreement with the result that on August 9 the first comprehensive proration plan was deemed necessary by the Commission. It was to run for a period of sixty days with a head umpire, his scouts and a committee of five operators in charge of administration of the orders.[20]

The requirements of other later orders were essentially similar in form but more inclusive in territory and amount of oil shut in. On September 3, 1928, all the flush fields in the state were prorated, in reality the first state-wide plan. The action was based upon a preliminary finding that the general demand from Oklahoma was approximately 700,000 barrels, from statistics of refinery capacities, amounts in storage and market reports of sales. It was also found that from the number of wells then operating in established fields and the number of wildcat wells being drilled, production might exceed 900,000 barrels a day. Hence it was ordered that all new wells be shot only with written consent of the umpire or Commission. The amounts to be run were prorated according to three figures, potential production of each lease, total potential production of each flush pool or field, and total potential production of all flush pools. With these figures ascertained, each flush field was permitted to produce only such proportion of the total allowable 425,000 barrels allotted to such fields as the potential production of that field bore to the total potential production of all the flush fields.

[19] OIL & GAS J., Sep. 6, 1928, p. 37.

[20] Their substance follows: (1) Four pools were limited to 450,000 barrels per day. (2) The umpire and scouts ascertained the average daily flow of all wells in any one pool, which was to be the potential for proration of each well and collectively of the field. Then, with the daily consumption estimated, each field and each lease was allowed to take only such percentage of its potential as was represented by the estimated demand over the total potential. (3) New wells were allowed to run three days with the third day's run as the potential. (4) There was provision for readjustment of potentials and arbitration of disputes by a committee of five operators.

The capacity for each lease depended upon the percentage reached for the field. If a given field could produce ten per cent of the total potential of all fields, then its quota would be 42,500 barrels a day. Supposing its potential to be 85,000 barrels, then the percentage would be fifty per cent and each lease could take only that amount of its possible output.

This was the substance of the proration orders of 1928 and indicates how they were put into effect.[21] Overproduction, however, continued and on January 21, 1930, additional orders were made leading to important litigation. All wells in the Oklahoma City field were prorated on a basis of seventy-five per cent with a sliding clause permitting further curtailment to thirty-three per cent. When the Commission's orders became even more drastic and many of the wells in the Oklahoma City field were allowed to operate only one day in twelve, the Julian Oil and Royalties Company, owner of several leases, sought a writ of prohibition against enforcement.[22] Its contentions may be summed up as follows: (1) That the statutes, particularly section 7956, defining waste, are so broad as to confer legislative power upon the Commission in violation of the Oklahoma Constitution, (2) that the terms used are too indefinite to confer any powers upon the Commission, (3) that petitioner's property is taken without due process of law, equal protection of the laws, or just compensation as guaranteed by the Federal constitution, (4) that the statutes provide for price control, a matter not subject to legislative regulation, and (5) that interstate commerce is interfered with.

In spite of this army of arguments and contrary to previously expressed opinion,[23] the statutes and orders made pursuant to them were upheld, one judge dissenting. The decision was not unexpected, however, in view of the Quinton case, and in fact the plaintiff had dismissed before judgment, the opinions in a proceeding to determine costs, because of the general public interest involved.

Taken as a whole, the statutes were held a valid exercise of implied powers under section nine of the Constitution, concerning public utilities. The classes created were reasonable and served a proper purpose; hence there was no denial of equal protection. The original findings of the Commission were reviewed with approval and there was little doubt as to the right of the state to conserve natural resources[24] as well as protect

[21] Flush fields were those with a daily output in excess of 100,000 barrels.

[22] C. C. Julian Oil and Royalties Co. v. Capshaw (Okla. 1930) 292 Pac. 842.

[23] VEASEY, *op. cit.* 608.

[24] Relying upon Ohio Oil Co. v. Indiana (1899) 177 U. S. 190.

the co-equal rights of surface owners to common pools. The petitioner's contention concerning interstate commerce was based on the effect of penalties against carriers who transported oil secured in violation of any order of the Commission. It was held, however, that this was merely a remote and incidental effect of proration and one not properly raised by the facts.

In a strict legal sense the dissenting judge was right in arguing that the Commission's orders were in essence for the purpose of maintaining prices and had only incidental concern with the preservation of resources.[25] Although all the orders made have been preceded by findings of economic waste, the court sustains the constitutionality of the statutes and the action taken under them on grounds of conservation only.

There can be no doubt that flooding the market is economically unprofitable. In 1926 Oklahoma producers received $413,000,000 for 179,000,000 barrels of oil, and one year later, with the general level of prices about the same, they received only $363,000,000 for 277,000,000 barrels of oil, or $50,000,000 less for 98,000,000 barrels more oil.[26] Much has been done under the Oklahoma statutes which is of benefit to the industry in general, although at least temporarily cutting the profits of her producers.[27] Observers of the plan have also noticed a possibly bad result, namely, the failure of prices to follow their customary relationship to amounts in storage. In 1928 when proration became common a wide and unprecedented divergence began, prices falling while the amount above ground remained fairly constant. This phenomenon showed that merely keeping the crude underground did not produce the usual anxiety about the future supply, which has so often served to raise the price. Yet regardless of price, proration does accomplish something in that costs and evaporation incident to lifting and storage are saved, or put off until there is a market and they can be met.[28]

It is generally contended that unit operation of a field is a more effective regulator than compulsory prorated taking. The preference is expressed because the former substitutes self-interest and intelligent cooperation for the policemen of a state

[25] MERRILL, *op. cit.* 401, stating that proration should be held constitutional only as a preservative of one of the nation's key industries and to guarantee prosperity to the general public. He admits, however, that there are certain objects of conservation in the scheme, since a flush field producing to capacity will always cause a substantial drop in the price of oil, creating a temptation for the owners of slow-producing wells to abandon them sooner than usual because not profitably workable.

[26] OIL & GAS J., Aug. 16, 1928, p. 37.

[27] Only California, Texas, and Oklahoma have enforced proration to any extent, and the first two in but a very few fields.

[28] NAT. PETROL. NEWS, Feb. 25, 1931, p. 39.

commission in the innumerable details involved in administering a proration plan.[29] As far as Oklahoma is concerned, however, it seems certain that present orders will remain in force at least until there is a diminution of supply or a rising summer demand. There is working at present a committee appointed by Governor Murray for the purpose of finding a substitute or effecting a compromise for those decrying the sacrifices being made by Oklahoma producers. The Governor himself recently went on record against proration and also against any immediate repeal because of the results on the market that might follow such action.[30]

The possible element of commercial pressure on state legislatures and commissions suggests the greater advisability of Federal control. One current criticism of state utility commissions is their susceptibility to the demands of the large interests they are supposed to regulate. It is quite conceivable that under pressure from petroleum producers a state legislature in an essentially oil-producing state, such as Oklahoma, might adopt or enforce radical price-fixing legislation which would be unfair to the consuming public throughout the nation. Extensive powers given the present Federal Oil Conservation Board, however, would provide national regulation with all the advantages of uniformity, equality, and impartiality as between the producers and the buyers.

FREDERICK R. RODGERS, '31.

THE CALIFORNIA OIL-GAS CONSERVATION ACTS

The state of California, because of its great supply of petroleum and because of its position on the Pacific coast, far away from the other great petroleum fields, holds an important place in the petroleum industry of the United States. The legislation of California prior to 1929 was twofold in its purpose. It sought to prevent the infiltration of water into the oil-bearing strata by appropriate regulations, compliance with which was made mandatory on gas and oil-well operators. It sought also to prevent the needless direct waste of natural gas through allowing it to escape from open wells.[1]

The State Oil and Gas Supervisor was directed to make tests for the determination of the most efficient methods by which underground oil and gas deposits might be kept free from the infiltration of water and to order such measures to be taken by well operators. If a well operator refused to make the repairs

[29] *Unit Operation and Proration Differ*, OIL & GAS J., Nov. 15, 1928, p. 39.
[30] ST. LOUIS POST-DISPATCH, Feb. 12, 1931.
[1] Gen. Laws Cal. (Deering, 1923) Act 4916.