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NOTE ON SECONDARY RECOVERY

Oil and gas practice includes a constantly-expanding horizon, in which the strata of common law and statutory development have been so inextricably mingled that it is frequently quite difficult to discover just where the needs of the industry begin, and where administrative control should end. In matters of secondary recovery, for example, legal principles that have been exploited for decades are being abandoned as though worked out; and other methods of production now come into operation with legislative blessing and governmental assistance. When sixty per cent of the Pennsylvania-grade oil yielded in the entire Appalachian area is obtained by water-flooding, the new doctrine of petroleum engineering has fairly become of age, and due recognition is thus available in the recent statutes of most producing states.

In any discussion of oil and gas conservation laws, one must study each problem from various different angles,—as to whether a given program is mechanically possible, whether it is economically advisable, whether it is politically wise, and whether it is legally sound. Fortunately, experience almost everywhere has shown that secondary recovery is feasible from the operational standpoint, and generally expedient as regards market economics. It may also be assumed that speedy legislation elsewhere has established the political wisdom beyond cavil, although, curiously enough, one jurisdiction has just repealed the experiment after a brief trial. With these issues out of the way, the legal problem then is rather the type of statute to be adopted, than the constitutional validity of legislative regulation. Otherwise, all these acts promoting such remarkable progress in the petroleum industry, through the aid of geological and engineering research, might run afoul of the due process clause, and perhaps one-fourth of the nation's oil resources would

1 Pettke, SECONDARY RECOVERY OF OIL IN THE UNITED STATES (1942) AMERICAN PETROLEUM INSTITUTE, c. 8, p. 76. The materials on secondary recovery methods have been tabulated in Moore, SECONDARY RECOVERY OF PETROLEUM (1938) Part I, Bibliography (published as BULLETIN 25, THE UNIVERSITY OF KANSAS).

2 Secondary recovery in Pennsylvania was legalized by the act of May 17, 1921 (P. L. 912, § 3).


4 Illinois (Smith-Hurd Stats. c. 93, § 89) permitting repressuring by the introduction of air, gas, water or other liquid into an oil or gas formation, was repealed by Laws 1941, vol. 1, p. 934, § 27.
be placed beyond present reach. The correct theory as to the state's police power in this respect has long been recognized:

"When property in which several persons have a common interest cannot be fully and beneficially enjoyed in its existing condition, the law often provides a way in which they may compel one another to submit to measures necessary to secure its beneficial enjoyment, making equitable compensation to any whose control of, or interest in the property, is thereby modified."

But granted secondary recovery may properly be authorized, the real difficulty is the substantive content of the regulatory measure, together with the extent of administrative supervision to be exercised.

It would be well to define, at the start, the legal or scientific terminology involved in such a legislative appraisal of this new development. Primary recovery refers simply to the old-fashioned way of extracting fugacious minerals, namely, the oil and gas recovered by any method (natural flow or artificial lift) that may be utilized for production through a single well-bore. In short, the fluid enters the well-bore by the action of native reservoir energy or gravity. On the other hand, secondary recovery contemplates a yield by any method (artificial flowing or pumping) which entails the joint use of two or more well-bores. Ordinarily, that comprehends the injection of liquids or gases into the oil reservoir for the purpose of augmenting reservoir energy, an operation usually (though not necessarily) undertaken after the primary-recovery phase is over. There are thus the four minimum requirements for application of secondary-recovery methods: first, an injection well, and second, a producing well, third, both drilled into a common mineral-bearing formation, and fourth, through the formation so being developed liquids or gases are forced under artificial pressure for the purpose of increasing oil recovery. By way of contrast,

5 Head v. Manufacturing Co., 113 U. S. 9, 21, 5 S. Ct. 441, 28 L. Ed. 889 (1885).
6 See also Ohio Oil Co. v. Indiana, 177 U. S. 190, 210, 20 S. Ct. 576, 44 L. Ed. 729 (1900); Walls v. Midland Carbon Co., 254 U. S. 300, 314, 324, 41 S. Ct. 118, 65 L. Ed. 276 (1920); Champlin Refining Co. v. Corporation Comm'n, 256 U. S. 210, 52 S. Ct. 559, 76 L. Ed. 1062, 86 A. L. R. 403 (1932).
7 Secondary Recovery of Oil in the United States, American Petroleum Institute (1942), Appendix A (Glossary of Terms) 255.
8 Gas or water-injection involves the introduction of either into a subsurface reservoir. Water-flooding is thus a secondary-recovery operation employing water-injection.
tertiary recovery denotes mining for petroleum: which is not only the earliest known production-method from ancient times, but also the most modern experimental device now attempted in petroleum engineering. If the present mining project should prove to be mechanically and economically successful, recovery-methods in shallow eastern fields may undergo revolutionary change. Getting back to the more conventional secondary-recovery operations, the term repressuring, so commonly encountered in recent statutes, means only an introduction of fluid (either gas or liquid) into the producing formation, in order to increase reservoir pressure. Accordingly, in fields where pressure maintenance becomes desirable, an injected gas-drive or water-flooding is used to achieve that goal.

Historically, secondary recovery dates back only a few decades. It is of course true that water-flooding, probably unintentional in character, occurred at a very early stage in the industry's growth, perhaps almost from the drilling of the Drake well in 1859, for the use of casing was not general until 1865 and crude methods of shutting off upper horizons from the oil sand were largely ineffective in protecting the latter from upper waters. Moreover, in the late nineteenth-century operations, leaks in casings and improper abandonment of old wells sometimes allowed water to enter the oil "pay", occasionally bringing about a noticeable increase in production. With plugging statutes then in force everywhere that regarded water as the natural enemy of the mineral sands, an

10 An operation is now in progress near Rocky Grove, Venango County, Pennsylvania. A shaft having put down to the Venango sands, it is proposed to drill horizontal holes back into the "pay" section, in a radial pattern. Alternate holes are to be used for repressuring purposes, and oil will be drained out through the intermediate holes. (Turney, supra note 9, at page 12).

11 FETTE, BRADFORD OIL FIELD (1938) 447-448. Sixteen per cent. of the oil originally present in the Bradford pool has been yielded by primary-recovery methods; and another twenty-four per cent. will have been gotten, after the entire pool has been watered out by secondary-recovery operations. Thus there will be sixty per cent. of the Bradford oil left in place, available for tertiary-recovery mining. And this is but a single example in the shallow eastern fields.

12 Recycling and cycling should be distinguished. The former is a continuous reinjection of produced gas,—while the latter (cycling) is an operation in which condensate-bearing gas is displaced from a gas zone by injection of dry gas.

13 Gas-drive is the process wherein energy for the recovery of oil is derived from gas under pressure in the formation. It includes an injected gas-drive, gas cap drive, and solution-gas drive. Hence, gas-drive may be applicable to either primary or secondary recovery.

14 FAUNCHER, SECONDARY RECOVERY OF OIL IN THE UNITED STATES, AMERICAN PETROLEUM INSTITUTE (1942) c. 6, p. 49.

15 W. VA. CODE ANN. (Barnes, 1923) c. 62D, § 1: "That when any well shall be drilled for the production of petroleum oil, natural gas, salt water, or mineral water, it shall be the duty of the owner thereof, before drilling said
tentional flooding on any considerable scale was impossible, though haphazard slitting of casings and unprevented drainage of surface waters into abandoned well-bores continued to demonstrate the feasibility of secondary-recovery methods. Meantime, geological research had long before suggested the practical application of water-injection for the benefit of an oil pool. It was thus inevitable that sporadic floods came to be utilized in northern Pennsylvania and southern New York, thirty or forty years ago; and their success invited legislative amendments. With the enactment of the Pennsylvania law of 1921, ways of utilizing the water-drive underwent rapid improvement, as the industry gained new life; old-type circle floods were replaced by line floods, and these in turn have gradually yielded to five-spot and seven-spot patterns of pressure-floods, with or without delayed drilling. A similar evolution in this regard took place in the mid-Continent field, actually prior to the Kansas statute of 1935. Within the last decade, however, appropriate action has been taken in other states "to legalize or at least make the method respectable," with the result that water-flooding is now generally prevalent, at least experimentally.

Analogously, gas-repressuring experiments were attempted by Ohio operators almost simultaneously with the early Pennsylvania flooding; and their success in turn led to active and profitable undertakings there and elsewhere. Application of air and gas-repressuring on an extensive scale became quite common in the

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16 Carl, The Geology of the Oil Regions of Warren, Venango, Clarion, and Butler Counties, Report III, Pennsylvania Second Geological Survey (1880) 263: "The flooding of an oil district is generally viewed as a great calamity, yet it may be questioned whether a larger amount of oil cannot be drawn from the rocks in that way than by any other, for it is certain that all the oil cannot be drawn from the reservoir without the admission of something to take its place. If one company owned all the wells drawing upon a pool, and had accurate records of the depths and characteristics of the oil-producing stratum in each well, it is quite possible that some system might be devised by which water could be let down through certain shafts, and the oil forced toward certain other shafts, where pumps were kept in motion, and thus the rocks be completely voided of oil and left full of water."

17 The first such amendment was the New York Act of April 17, 1919 (Laws 1919, c. 252); which is codified in the General Business Law under the subtitle, Oil and Distilled Spirits.

18 FETCHE, op. cit. supra note 11, at 298-411. It is interesting to note in water flooding the experimental use of a solution analogous (more or less) in chemical composition to connate water.

19 FANCHER, op. cit. supra note 14.

20 TORREY, op. cit. supra note 9, at c. 2, p. 18.
Venango fields of Pennsylvania, beginning in 1927, and has continued with further expansion to the present time.\(^1\) West Virginia also pioneered in this sort of development, with the Sistersville project in Tyler county ( commenced in 1933) as the first completely unitized secondary-recovery operation.\(^2\) It is significant that gas or air-injection is employed to advantage in nine other states, so that there has been a very considerable increase over total primary recovery. One authority has ventured the prediction that gas-repressuring of the recycling type will recover, under average conditions, fifteen per cent of the residual-oil content of the reservoir.\(^3\) To be sure, that estimate is manifestly under the total secondary recovery from water-flooding; yet it must be recognized that all sands are not equally suited geologically and economically for use of water-drive.

Such is the geological and industrial environment of secondary-recovery statutes. Their legal background is not so clear, however, for common law and legislation have long since become hopelessly interwoven in the delimitation of the rights and liabilities of lessor and lessee. To begin with, each of the parties is governed at common law by the normal incidents of the landlord-tenant relation, except to the extent that these may have been modified by the oil and gas lease or by the nature of the industry. That is to say, for example, the operator owes to the landowner the stipulated rents and royalties arising out of production under this lease, subject naturally to all implications of the doctrine of development.\(^4\) Unless there has been voluntary or compulsory pooling of acreages previously leased and operated, it is hard to see how water-flooding or gas-repressuring can be carried through on any very extensive scale, so as to deprive the lessor of his rents and royalties or even to curtail those revenues appreciably. Where the injection well is on one owner’s land, with the producing well on another’s, it would require the wisdom of Solomon to adjust the competing claims of the respective lessors in a jurisdiction that had previously

\(^1\) Dickey, Oil Geology of the Titusville Quadrangle, Pennsylvania (1941), published as Bulletin M22, Topographic and Geological Survey of Pennsylvania.

\(^2\) Heck, Secondary Recovery in West Virginia (1941), reprinted from Secondary Recovery of Oil in the United States, American Petroleum Institute (1942). This is an extremely interesting account of the thirty-four different secondary-recovery projects in West Virginia.

\(^3\) Torrey op. cit. supra note 9, at page 61.

refused to accept the theory of equitable apportionment;\textsuperscript{25} and the secondary-recovery operator might actually be forced then to put in some sort of offset well on the flooded or repressured land, simply to avoid fraudulent-drainage liability.\textsuperscript{26} Nevertheless, voluntary-pooling agreements ordinarily ought to be feasible in that situation, for each landowner would stand to gain at least as much in royalties as the producing wells had already yielded.\textsuperscript{27} Once in a while, perhaps, a stubborn lessor might balk at the pooling scheme: and at common law, it is quite possible his opposition could absolutely defeat the projected operation. In states which have compulsory-pooling statutes, of course, the issue will scarcely arise, because the same principle must apply both to primary and secondary recovery.\textsuperscript{28}

Another significant phase of the lessor's rent-receiving reversion has to do with the length of the operator's term, as expressed in the habendum clause of the lease. According to its language, the operation is to continue so long as oil or gas is "produced", "produced in paying quantities" or analogous words of limitation; what the parties really intend is that the lease shall endure for the life of the field.\textsuperscript{29} It is fairly within the contemplation of the agreement that the lessee may utilize any reasonable methods of recovery which modern science may eventually discovery:\textsuperscript{30} whether these lead to primary or to secondary recovery should be immaterial as regards the habendum. Indeed the legal concept of "the life of the field" might also take in tertiary recovery, provided there has been continuous yield by one means or another; the individual operator would always have to bear in mind that cessation of production after primary-recovery pumping has been fully utilized, or, \textit{a fortiori}, after flooding or repressuring has been completely undertaken, might then justify a court in decreeing "abandonment" or implied surrender of the leasehold.\textsuperscript{31} Furthermore, under the usual

\textsuperscript{25}Equitable Apportionment of Oil and Gas Royalties (1939) 46 W. Va. L. Q. 66.
\textsuperscript{27}See 7 SULKERS, OIL & GAS (Perm. ed. 1939) § 1521, \textit{Operating Agreement under Sublease or Partial Assignment Providing for Repressing by Water, Pennsylvania Form}.
\textsuperscript{28}It should be noted, of course, that pooling arrangements for primary-recovery methods may comprise different acreages from those for secondary-recovery operation of the same oil pool. However, that should make no difference under the modern type of conservation statute.
\textsuperscript{29}Eastern Oil Co. v. Coulehan, 65 W. Va. 531, 64 S. E. 836 (1909). See Syllabus, par. 4.
\textsuperscript{30}Mary Helen Coal Co. v. Hatfield, 75 W. Va. 148, 83 S. E. 292 (1914).
\textsuperscript{31}Clark v. Wright, 311 Pa. 69, 77-78, 166 Atl. 775 (1933): "An unexplained cessation of operations under a lease the term of which depends upon
plugging statutes, the lessor can hardly claim the other's duties have terminated merely because production is not in commercial quantities.\textsuperscript{32} One may accordingly conclude that the lessee is fully empowered by the so long as clause to proceed with development, when secondary recovery becomes available through geological and engineering research. It may be suggested that gas storage,\textsuperscript{33} in and of itself, would not fall within this reasoning unless there were incidental production of oil, gas or the lighter hydrocarbons.\textsuperscript{34} Still, whether or not such ordinary storage is valid under the customary lease, gas repressuring for secondary recovery is a wholly different matter in legal theory.

The common law liability of the tenant for voluntary or permissive waste creates a far more difficult question; yet it is primarily in this connection that conservation statutes play their important role. Under an ordinary lease of land, the common law forbids its use in other than a tenantlike manner,\textsuperscript{35} and presumably that doctrine carries over into oil and gas jurisprudence.\textsuperscript{36} In any event plugging statutes have now for decades preempted the field substantially with the requirement that oil and gas strata must be pro-

\textsuperscript{32} But see (apparently contra) Eastern Carbon Black Co. v. Stone, 229 Ky. 68, 16 S. W. (2d) 492 (1929).

\textsuperscript{33} As in Hammonds v. Central Kentucky Natural Gas Co., 225 Ky. 685, 75 S. W. (2d) 204 (1934); discussed in Comment (1935) 41 W. Va. L. Q. 431; (1935) 48 Harv. L. Rev. 855.

\textsuperscript{34} Price and Headlee, Geochemistry of Natural Gas in Appalachian Province (1941), reprinted from (1942) 26 Bulletin of American Association of Petroleum Geologists 19.

\textsuperscript{35} Chalmers v. Smith, 152 Mass. 561, 26 N. E. 95, 11 L. R. A. 769 (1891); Windon v. Stewart, 43 W. Va. 711, 28 S. E. 776 (1897).

\textsuperscript{36} A. SUMMERS, Oil & Gas §§ 652, 654 and 655. See also, Manufacturers Gas & Oil Co. v. Indiana Natural Gas & Oil Co., 155 Ind. 461, 57 N. E. 912, 50 L. R. A. 768 (1900) and Louisville Gas Co. v. Ky. Heating Co., 117 Ky. 71, 77 S. W. 368, 70 L. R. A. 558 (1903).
ected against hazards from open or improperly-abandoned wells. These hazards include not only the loss of reservoir pressure by reason of escape of gas, but also possible harm to the oil or gas sands from water-bearing strata. As a matter of fact, water-intrusion has very generally been regarded as a statutory evil quite on a parity with wanton dissipation of gas. Under such legislation, moreover, a cause of action for waste may arise in favor of a lessor against his lessee. Clearly the operator is forbidden by statute law to injure the landowner’s reversion in the fugacious minerals, whether by improper drilling, by letting the well remain open or by failing to plug an abandoned operation against surface or underground water. Two legislative purposes emerge from it all: first, the common law concept of waste is broadened so as to comprise any persons who jeopardize these irreplaceable natural resources; and, second, oil and gas sands should be safeguarded against injury. Obviously, it was not then in the mind of the legislature to penalize the use of wholly-unforeseen gas or water-injection methods, by an operator who had no thought of abandoning the leasehold. Any other construction of the common form of plugging statute would not promote conservation; on the contrary, it would defeat conservation by locking up the lessor’s minerals forever against modern

37 Veasey, Legislative Control of Producing Oil and Gas (1927) 52 A. B. A. REP. 577, 590-591: “The statutory law relating to water intrusion may be thus epitomized: (1) Before drilling into the producing formation, an operator is required to case off all water. (2) Before abandoning an oil or gas well, the operator is required to plug the well in a specified manner, frequently under the direction and supervision of a state official, to prevent the penetration of the producing strata by water. (3) A violation of the statute is declared a misdemeanor and punished accordingly. (4) As a further remedy, the owner or lessee of adjacent or neighboring land underlaid by the same deposit may enter and plug the well if the operator controlling the same fails or neglects to do so, the statute providing that in such circumstances the expense of plugging may be recovered from the delinquent operator. Some of the more recent enactments delegate to some conservation agency of the state the power to prevent injury to the producing formations by water infiltration. In several jurisdictions, prosecutions under these statutes have been upheld. Moreover, the right of the adjoining owner to enter and plug an abandoned well and to recover the expense thereof has been upheld. Even at common law, a neighboring lessee may recover damages from an operator who fails to plug a well to prevent water intrusion and where that result ensues. The constitutionality of a statute designed to protect producing formations from water has never been raised—probably for the reason that this is a clear exercise of the police power.”


39 Empire Oil & Refining Co. v. Hoyt, 113 F. (2d) 356 (C. C. A. 6th, 1940); criticized in Comment (1940) 47 W. VA. L. Q. 65.
secondary-recovery efforts. Hence as between lessor and lessee, the code provisions against waste should be inapplicable to reasonable development through primary, secondary or tertiary operations.

Assuming then plugging statutes and their like should not be construed as hostile to present-day secondary recovery (in the absence of some specific provision expressly forbidding water-intrusion), one should turn once more to the common law and the relational obligation of the tenant not to commit or suffer waste. Obviously, the operator must not deplete or destroy the mineral-bearing sands in an untenantlike manner, according to prevalent standards of the industry; but beyond that, there will be no liability. Any reasonable way of recovery ought to be available, as regards the common law of waste. It is very possible a lessor may assert that water-injection ruins the sands forever; no doubt only tertiary recovery will remain after the strata have been watered out. And since flooding is by no means invariably successful, this lessor may seek to enjoin on the ground such a hazardous operation was not within the original contemplation of the parties. The short answer might well be that no other method is available, when primary recovery has finally ceased. If four-fifths of the oil is still in place, surely social needs and national welfare can require the reversioner to submit to modern technological progress in petroleum recovery. After all, conservation laws have shown over and over

40 The plugging statutes are presumably in derogation of the common law, and must therefore be strictly construed. The common law result in cases of waste is best typified by Hague v. Wheeler, 157 Pa. 324, 27 Atl. 714, 22 L. R. A. 141 (1893).

41 For example, Article III of the Interstate Compact to Conserve Oil and Gas is as follows: "Each state bound hereby agrees that within a reasonable time it will enact laws or, if laws have been enacted, then it agrees to continue the same in force to accomplish within reasonable limits the prevention of—"

(b) The drowning with water of any stratum capable of producing oil or gas, or both oil and gas, in paying quantities."

Again, the Rules and Regulations of the West Virginia Department of Mines, as to the manner in which plugging shall be done, contain the following paragraph: "All dry and abandoned wells shall be plugged and filled in the manner described in the above mentioned Section 10, Article 4 to the end that there will be no infiltration of water into any oil or gas-bearing strata or workable coal seams. Such plugging and filling shall be done in such a manner as to prevent any migration of oil, gas or water to any strata other than that in which they occur."


again that property rights in fugacious minerals are not absolute;\textsuperscript{44} and here the owner has to yield to industrial requirements. On the other hand, air-repressuring raises somewhat different technical problems. Here the lessor may claim, first, a dilution of his gas, making it unsuitable for fuel; second, oxidation of hydro-carbon compounds to form insoluble resins which may plug the sand; third, increase in oil viscosity; and, fourth, formation of permanent emulsions when in contact with water and oil-bearing strata.\textsuperscript{45} Nevertheless, the balance of convenience will definitely favor the industry. When possibly a sixth of the oil in place becomes recoverable through air-repressuring the law will readily overlook these incidental risks. As to gas-repressuring, little need be said, for there is no proof that the reversion is in any wise harmed by the method. One may accordingly conclude there is nothing in the common law of waste which would prevent adoption of secondary-recovery development.

The operator's liability for injury to third parties is much more serious, both at common law and under the statutes. As a general rule, a neighbor may recover damages for harm suffered through water-intrusion,\textsuperscript{46} and this liability exists even without reference to legislation: the common law itself forbids intentional or negligent pollution of underground strata.\textsuperscript{47} During the decades since plugging acts were passed, courts have enforced their provisions with a rigid, uncompromising severity. In one jurisdiction, for example, prosecutions for violation have been sustained;\textsuperscript{48} the

\textsuperscript{44} Bates, \textit{Some Constitutional Aspects of the Oil Problem} (1934) 114 TRANS. A. I. M. E. 193, 194: "Now as to notions of property, I suppose that while the human race has always been acquisitive and has desired possessions, property as we know it today is relatively a late development in our law. It is not an absolute, it is not a God-given concept. The term is one that we use to describe what we call rights, a group of rights acquired under certain conditions. It is not a rigid, enduring thing in the form in which it originated." Dean Bates' views are also reflected in Behrens v. Richards, (1905) 2 Ch. 614, 622, \textit{per} Buckley, J.: "The existing security of the tenure of land in this country is largely maintained by the fact that the owners of the land behave reasonably in the matter of its enjoyment." In other words, the "absolute-ownership" theory as to fugacious minerals must here yield to the needs of the oil and gas industry.

\textsuperscript{45} Torrey, \textit{op. cit. supra} note 9, at c. 7, page 72.


\textsuperscript{47} Kimnaird v. Standard Oil Co., 89 Ky. 468, 12 S. W. 937, 7 L. R. A. 451 (1890).

\textsuperscript{48} Jones v. State, 21 Okl. Cr. 387, 388, 208 Pac. 1038 (1922); State v. Lebow, 128 Kan. 715, 280 Pac. 773 (1929).
escape of salt water has been deemed negligence *per se*; and exemplary damages have been allowed. Water-injection may thus lead to considerable litigation according to present decisions, for the tendency of the courts to mingle legislation and common law is well exemplified under this heading. It would appear that an appropriate secondary-recovery act might be requisite, if water-flood- ing were to be undertaken in connection with any large-scale development.

Proceeding now to the survey of recent secondary-recovery statutes, perhaps three separate types may be noted. First of all, the somewhat unique Pennsylvania act of 1921, (as later amended), provides that an operator of wells producing oil or gas from seven specified sands is permitted to allow the wells to remain open for the purpose of introducing air, gas, water, or other liquid pressure, in order to recover the oil and gas contained in these named sands, and with the qualification that the repressuring be through casing or tubing so anchored that no other sand will be affected. Secondly, Kentucky and New York (flooding only) broadly grant exemption from plugging laws for secondary recovery of oil from any and all producing strata, without limitation or further governmental control, as formerly did Illinois. The third category of statutes governs secondary recovery by more or less required administrative control. At one extreme in that group are Kansas, Mississippi (gas only) and New Mexico, which simply require written approval of the secondary-recovery undertaking by an appropriate board or commission. A degree more of administrative supervision exists in California (gas only), Ohio and Texas (gas only), where the procedure for obtaining official consent is more carefully spelled out. At the other extreme in the third class one

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49 Knupp Oil Corp'n v. Lohman, 129 Oid. 288, 264 Pac. 824 (1928).
51 PA. STATS. (Purdon, 1930) tit. 68, § 7.
52 KY. STATS. (Baldwin's rev'n of Carroll, 1936) § 3766b-20a.
53 N. Y. CONSOL. LAWS (McKinney) art. 19, 20, § 308 (as amended by Laws 1919, c. 252, April 17, 1919).
55 MISS. GEN. LAWS (1932) c. 117, § 37 (b).
57 CAL. STATS. 1939, c. 93, Public Resources Code § 3301.
58 OHIO LAWS 1939, p. 100, amending general code §§ 898-188b, 898-188c, 898-190 and 598-303.
59 TEX. ANN. CIV. STATS. (Vernon) art. 6008, § 7(1)(c).
finds Alabama,60 Arkansas,61 Louisiana,62 Michigan63 and North Dakota,64 with a brief enabling law in much the following language:

"The administrative agency shall have authority,—

"To regulate secondary recovery methods, including the introduction of gas, air, water, or other substance into producing formations."

Undoubtedly, if the administrative control is of the best, the last sort of statute offers ample opportunity for industrial experimentation and research, with adequate safeguards in the public interest. It should also be noted that modern conservation codes relating to oil and gas,—particularly those passed within the last few years,—may reasonably imply a power in the board or commission to regulate or even to compel secondary-recovery operations.65 However, the effect of the 1941 repeal of the specific Illinois provision66 is not readily apparent; and among other states in which secondary development is now in progress are Colorado, Montana, Oklahoma, West Virginia and Wyoming.

The Legal Committee of the Interstate Oil Compact Commission recommended, a few months ago, that each oil-producing state should pass a law specifically authorizing secondary-recovery operations of every sort. It was expressly advocated that such a statute give broad power to an administrative agency to regulate all these operations. And, more important, that agency should have the authority to require compulsory pooling of tracts in order to bring about joint operation, provided the interested parties cannot agree and the owners of as much as eighty per cent. of the acreage file a petition requesting the agency to take this action.67 Reference was made by the Legal Committee to the provisions of the analogous 1940 Louisiana act, which was largely sponsored by the industry. There is, of course, plenty of precedent for the compulsory-pooling

60 ALA. CODE (1940) tit. 26, § 179(6), as amended by 1939 Laws, No. 645, p. 1009.
62 La. Acts 1940, Act 157, § 3(j), p. 610. See also § 4(b) in the same act.
64 N. Dak. Laws 1941, c. 170, § 5(c).
66 Illinois Smith-Hurd Stats., c. 93, § 89, permitting repressuring by the introduction of air, gas, water or other liquid into an oil or gas formation was repealed by 1 Laws 1941, 984, § 27.
device; and there ought to be little doubt as to its validity in secondary recovery. 68

Dean Pound has suggested 69 that the legislative method is the method employed when a white line is marked down the middle of the highway so the driver may see whether he follows the prescribed path on his side of the road. The method of the judiciary would be (after the event) to tell the traffic-law violator how he ought to have driven, if he is alive to be told. In contrast, the administrative method is to station an official at the hazardous place, signalling perhaps with both hands and his head in three different directions, stopping traffic here and urging it on there, and adapting the use of that place to the needs of the moment. Along the statutory frontier of oil and gas practice, secondary-recovery operations create legal snarls that no broad white-line legislation can wholly avert. Compulsory pooling so as to obviate drainage (or fraudulent drainage) litigation, or to achieve immunity from third-party liability where a unitized scheme is in project, must inevitably necessitate some kind of administrative reconciliation and adjustment of all the various competing claims. Thus, in the complex problems of flooding and gas-repressuring, the business of government cannot go on ‘without the delegation, in greater or less degree, of the power to adapt the rule to the swifty moving facts.’ 70

C. C. Williams, Jr.


69 Pound, supra note 3, at pages 207, 210-211.