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NOTES

PROBLEMS OF LEASING SEPARATE OIL STRATA AND FORMATIONS

Over the years an oil and gas lease has been considered a lease of all oil and gas under the described tract of land. This is not necessarily so today, as more and more leases are being executed which are supposedly only for the oil and gas in a particular formation or stratum. Such leases are comparatively new and therefore seldom litigated.

A hypothetical situation in which such leases might be granted is as follows: A owns land in a known oil producing area. He retains the mineral rights and has not executed an oil and gas lease. He learns that the oil being produced in this area comes from more than one formation or stratum. He therefore, with an eye toward collecting more than one bonus, proceeds to separately lease each formation that has a possibility of producing oil.

A second hypothetical situation would be as follows: L leased all the oil and gas under his land to M. The lease, however, contained special provisions. These provisions provided that if the lessee discovers and

produces oil from one formation but fails to drill to a lower, known oil producing formation, he will lose his rights to the lower formation. It then appeared that M did not in fact drill to a lower formation which was a proven oil producer in the area and thereby lost his rights to the lower formation. When M lost his rights to the lower formation they reverted back to L who leased them to another lessee.

In both hypotheticals several leases would be created which would cover the same tract of land but which would relate to different and separate formations or strata.

Before we can understand the problems involved in leasing separate strata or formations it is necessary that we first have an understanding of the geological principles involved in the accumulation and production of oil.

There are four conditions which must be fulfilled in order that oil can accumulate in the earth. The first requisite condition is a porous, fractured, cavernous or creviced stratum or formation in which the fluids may accumulate. This formation is generally called the reservoir.¹ The word "formation" as used above and throughout this article refers to an assemblage of rock masses that were deposited more or less continuously under essentially uniform conditions and which are sufficiently homogenous or distinctive as to be regarded as a unit.²

The second requisite is favorable structural arrangements of the strata or formations. This is the condition that controls the accumulation of oil in the reservoir.³ One of the more simple forms of such a geologic structure is termed the anticline. A simplified drawing of a typical anticline is shown in Fig. 1 of the Appendix. This drawing shows the necessary requisite conditions for the accumulation and production of oil and the possibilities of having several oil producing formations overlying one another.

The third requisite is an impermeable layer, which overlies the producing formation and prevents the escape of the oil.⁴ The favorable structural arrangement and the overlying impermeable layer form a "trap"⁵ in which the oil may accumulate.

The fourth requisite is that the source or oil forming strata be situated in such a manner as to allow the migration of the oil from the source rock to the reservoir. This migration is generally initiated by a water drive,

1. Gilluly, *Principles of Geology*, 554 (1955); Lalicker, *Principles of Petroleum Geology*, 96 (1949); Muskat, *Physical Principles of Oil Production Engineering*, 13-17 (1946).
2. Longwell, *Physical Geology*, 203 (1953).
3. Gilluly, *op. cit. supra*, 554; Lalicker, *op. cit. supra*, 110; Muskat, *op. cit. supra*, 15; Pirson, *op. cit. supra*, 20; Uren, *op. cit. supra*, 17-30.
4. Gilluly, *op. cit. supra*, 554; Muskat, *op. cit. supra*, 12; Uren, *op. cit. supra*, 15.
5. Report, Engineering Committee, Interstate Oil Compact Commission, New Orleans, April 14, 1941; Uren, *op. cit. supra*, 13.

that is, fluids seeking paths of least resistance to lower pressures, thereby forcing the accumulation of oil and gas in structural "traps."⁶

It should be noted next that each separate formation, as defined above, is given a definite geological name,⁷ and leasing of the type in question is usually done with reference to the formation name, e.g., "Woods Sand Formation." There are, however, some leases which have been executed in terms of depth below the surface. These leases are not satisfactory as not all oil bearing formations are level. Instead the oil bearing formations may dip to a certain degree, thereby causing the formation to exist both above and below the depth mentioned in the lease.⁸ Courts have had some difficulty determining who has the right to drill into the formation after it dipped below the maximum depth of the lease. In the case of *Carter Oil Co. v. McCasland*,⁹ the court held that as the lessees discovered the oil above the maximum depth of the lease he had the better right to all the oil in the formation, whether it dipped below the maximum depth or not.

Leasing separate formations or strata to different lessees presents some new and difficult legal problems. Most of the legal problems encountered under ordinary leases are also present but this article will deal only with those problems that are peculiar to leasing separate formations or strata.

I.

First, can there be a valid lease of separate formations? This question has never been directly decided, however there are cases that would support the position that such a lease is valid. The first group of cases say that there can be separate ownership of each formation or strata.¹⁰

In *Shell Oil Co. v. Manley Oil Corp.*,¹¹ the court had to decide whether a conveyance of the surface only of a tract of land subject to coal rights theretofore conveyed, granted also the oil and gas rights under said tract of land. The court held that it did not, saying that, "the authorities seem also to recognize the right of severance to extend to as many strata as there may be in the subsurface."¹² The decision placed the ownership of the oil and gas in still a third person.

In *Yoss v. Markley*,¹³ the court held that one of the litigants owned only the coal as opposed to all other minerals under the land, saying, "each stratum or kind of minerals in turn may be the subject of a grant,

6. Gilluly, op. cit. supra, 55; Lalicker, op. cit. supra, 73-95; Uren, op. cit. supra, 10.

7. Longwell, op. cit. supra, 203.

8. *Carter Oil Co. v. McCasland*, 190 F.2d 887, 890 (10th Cir. 1951); see note 3 supra.

9. 190 F.2d 886 (10th Cir. 1951).

10. *Shell Oil Co. v. Manley Oil Corp.*, 124 F.2d 714 (7th Cir. 1941); *Yoss v. Markley*, 68 N.1.2d 399 (1946); *Gill v. Fletcher*, 78 N.E. 433, 74 Ohio St. 295 (1906); *Lillibridge v. Lackawanna Coal Co.*, 143 Pa. 293, 22 Atl. 1035, 13 L.R.A. 627 (1891); *Thompson, Real Property*, Vol. 1, §§ 88-90 (Perm. Ed. 1939).

11. 124 F.2d 714 (7th Cir. 1941).

12. Id. at 715.

13. 68 N.E.2d 339 (1946).

and there may be as many different owners of the minerals as there are different kinds or strata."¹⁴

With the above mentioned cases as a basis it could be argued that if the owner of the mineral rights can separately convey by deed of grant the different kinds of formation therein, he surely could also separately lease the different kinds of formations. Another argument is that if there could be separate owners of each formation these owners could separately lease their interest, thereby creating several outstanding leases covering the same tract of land but relating to different formations or strata. It would logically follow that the owner of all the minerals could also create several outstanding leases covering the same tract of land but relating to different formations or strata. There are several Oklahoma cases which lend support to such an argument.¹⁵

In the leading case of *Carter Oil Co. v. McCasland*,¹⁶ the landowner leased all the oil and gas under the tract of land to one person. The lessee in turn assigned one of the formations to another operator. In the opinion the court concerned itself with the construction of the contract; namely, with the interpretation of the words "producing horizon." However, the court considered this type of assignment valid without specifically saying so. They did say that the assignee had the exclusive right to the oil produced from the "producing horizon" in question, and allowed the lessee-assignor the exclusive right to all other oil produced.

II.

Second, there is the question of obtaining information sufficient to establish where the lessee's well is bottomed. This information becomes very important where the lessee in question has rights to only one formation. A hypothetical situation can be imagined where the lessee has rights to a specific formation, and upon drilling to a certain depth begins to recover oil. The question would then be, how can the lessor or the lessee of other formations under this tract of land be sure that the oil being recovered is from the proper formation. It should be noted here that the depth of the well will not be sufficient to establish which formation the well is bottomed in. Formations, especially those which are oil producing are not level. Instead they dip to a certain degree,¹⁷ and although geologists can make good guesses they are not sure how much a formation dips at a depth under the surface. It would be necessary to obtain a core or cuttings taken from the well to be sure where the well is bottomed.

A long line of cases beginning with *Union Oil Company of Calif. v. Reconstruction Oil Company*,¹⁸ established the principle that a court has

14. *Id.* at 410.

15. *Carter Oil Co. v. McCasland*, 190 F.2d 887 (10th Cir. 1951); *Waldrip v. Hamon*, 128 F. Supp. 4 (E.D. Okla. 1954); 27 *Notre Dame Law* 291.

16. 190 F.2d 887 (10th Cir. 1951).

17. See notes 3 and 8 *supra*.

18. 4 *Cal. Rep.2d* 541, 51 *P.2d* 81 (1935).

the right to permit plaintiffs to go upon and into the defendant's oil wells for the purpose of making subsurface deviational and directional surveys. In the above case, the court in considering orders authorizing and directing the plaintiff to make a subsurvey of an oil well said that the orders

were made in the exercise of the inherent power of the court to compel the furnishing of evidence in a civil action by one adverse party upon the proper application of the other party. A party in a civil action has no privilege of refusing to testify or furnish information necessary to the presentation of his opponent's case.¹⁹

The orders involved were in the nature of a bill of discovery. They allowed surveys which would establish whether or not a well deviated from the vertical in its downward course in such a way that it invaded the subsurface belonging to a party who has not leased the premises to the driller. This principle could and should be extended to allow discovery of sufficient information to determine in which formation a well is bottomed, as such information is necessary to the presentation of the plaintiff's case in a quiet title or trespass action.

III.

Third, there are the problems encountered when the lessee of a separate formation must drill through a formation leased to another before he can bottom in his own formation. Does the lessee of the lower formation have the right to drill through the upper formation. Does he have the duty to release information about the upper formation to the lessor or the lessee of that upper formation? Does he have the duty not to release to the public the information gained by drilling through upper formations? Is he liable for damages done to the upper formation by flooding, drainage or release of gas pressure? How can the lessee of the upper formation gain sufficient information to establish that there is such damages? If the lower lessee is liable for damages, will the common lessor also be liable?

A lessee of all the oil and gas has the right to such use of the surface and subsurface as is reasonable and necessary to discover and produce the oil and gas present.²⁰ This right is either expressed in the lease or implied by the courts as a necessity in fulfilling the general purpose of the lease, which is production of oil and gas.²¹ This right is usually thought of as an easement.²² An oil and gas lease of one formation or stratum has as its general purpose the production of the oil and gas present in that formation. It is not only necessary but essential that the lessee of a formation or stratum also be allowed the use of so much of the surface and subsurface

19. *Id.* at 543, 51 P.2d 83 (1935).

20. *Hastings Oil Co. v. Texas Co.*, 234 S.W.2d 389, 149 Tex. 125 (1950); 5 *John Marshall L.Q.* 30; 4 *Summers, The Law of Oil and Gas*, § 652.

21. *Mcree: Granting Clauses in Oil and Gas Leases*, Second Annual Institute on Oil and Gas Law and Taxation, 55; 4 *Summers, op. cit. supra* § 652, p. 2; *Sullivan, Handbook of Oil and Gas Law*, § 35, p. 89.

22. *Stanolind Oil & Gas Co. v. Wimberly*, 181 S.W.2d 941, 944 (1944); *Currie v. Harrie*, 172 S.W.2d 404, 407 (1943); *Sullivan, op. cit. supra*, § 35, p. 90.

as is reasonable and necessary to fulfill such purpose. It could therefore be argued that the lessee of one formation or stratum has an easement by necessity which allows him the use of a reasonable and necessary part of that surface and subsurface to produce the oil and gas present in the leased formation or stratum. One of the rights under this easement by necessity would be to drill through upper formations to his lower formation.

Courts have continually held that in the absence of a fiduciary or confidential relationship between the buyer and the seller there are no rules of law which require the buyer of an oil lease to disclose to the seller information that the buyer may have concerning the land but which the seller may not have.²³ The courts have, however, set aside many conveyances and leases on the grounds that the purchaser had information about the value of the land and misrepresented this value to the seller.²⁴ These rules would most likely be expanded to include the situation where a lessee of a lower formation drills through an upper formation, thereby gaining information about its mineral content. Unless a confidential or fiduciary relationship existed with the lessor the lessee would not have to disclose the information so gained. Unless a similar relationship could be found, there should be no duty on the lessee of a lower formation to disclose information about an upper formation to a lessee of such upper formation. However, he could not make false representations to either the lessor or the lessees of upper formations.

There seems to be a split of authority as to whether a landowner or lessee may recover damages against a trespasser resulting from the drilling of a dry well or disclosure of the non-productive character of the land.²⁵ This split of opinion would possibly be carried over to the question of disclosure of information to the public by the lessee of the lower formation. There is, however, one important distinction between the two types of cases. In the former the disclosure was made by a trespasser,²⁶ and in the latter the disclosure would not be made by a trespasser, as the lower lessee would enjoy an easement which allows him to drill through an upper formation. Whether this distinction will make any difference is speculative.

In Texas the courts have held that a good faith trespasser who drills a dry well must pay damages to the landowner measured by the amount of the depreciation in the leasing value of the land for oil and gas purposes,²⁷ and they would possibly hold the same way in this situation. In Wyoming, the Supreme Court held that the loss of the alleged market

23. *Henderson v. Shell Oil Co.*, 202 S.D.2d 492, *aff'd*, 146 Tex. 467, 208 S.W.2d 863 (Civ. App. 1947).

24. 4 *Summers*, *op. cit. supra*, § 662, n. 58.

25. *Matheson v. Placid Oil Co.*, 212 La. 807, 33 So.2d 527 (1947); *Martel v. Hall Oil Co.*, 36 Wyo. 166, 253 Pac. 862, 255 Pac. 3, 52 A.L.R. 91 (1927).

26. *Ibid.*

27. *Kishi v. Humble Oil*, 261 S.W. 228 (1924).

value was too speculative to furnish any basis for damages,²⁸ and they would most likely hold the same way in this situation.

Ordinarily if one goes upon the land of another and takes or interferes with the other's oil and gas or permanently injures the other's land he is a trespasser.²⁹ It would seem to follow that if the lessee of a separate formation took oil and gas from any of the other formations he too would be a trespasser. However, according to the reasoning herein he would not be a trespasser by merely drilling through a formation overlying his own as he would have an easement by necessity allowing him to do so.

It should be noted here that oil and gas as they exist in the earth structures may be subject to great pressure. Consequently the mere fact of drilling into a formation bearing oil and gas under pressure may result in an uncontrolled flow of the oil and gas.³⁰ This uncontrolled flow of the oil and gas would amount to a permanent injury to the real property interests of another in that it decreases the amount of oil and gas present, decreases the gas and water drive, and causes possible water encroachment. Even though you could say that the intruder had a right to intrude, you could not say that he had a right to so intrude as to injure the other's interests. Therefore, it could be said that by so intruding and injuring another's interest, he would become a trespasser, and liable for the damage done.

In *Green v. General Petroleum Corp.*,³¹ the court said:

Where one, in the conduct and maintenance of an enterprise lawful and proper in itself, deliberately does an act under known conditions, and, with knowledge that injury may result to another proceeds, and injury is done to the other as the direct and proximate consequence of the act, however carefully done, the one who does the act, and causes the injury should, in all fairness, be required to compensate the other for the damages done.³²

By so saying the court states a theory upon which the lessor or lessees of an overlying formation could base a claim for recovery in this situation.

While the above discussion concerned the injury caused by draining oil and gas from another's formation, it could and should include the injury caused by allowing salt water to flood into the other's formation. Such a situation would arise if the lessee of the lower formation, after drilling through another's formation, hits salt water under pressure. Unless proper precautions are taken this salt water may flow up the well-bore to the level of the other's formation and then flood into that formation. In this situation trespass would not be the only theory for recovery available.

28. *Martel v. Hall Oil Co.*, 36 Wyo. 166, 253 Pac. 862, 255 Pac. 3, 52 A.L.R. 91 (1927).

29. 1 Summers, op. cit. supra, § 21; Sullivan, op. cit. supra, § 17.

30. 4 Summers, op. cit. supra, § 654.

31. 205 Cal. 328, 270 Pac. 952, 60 A.L.R. 475 (1928).

32. *Ibid.*

Some courts have said that allowing salt water to flow from the operator's land onto another's land would result in liability upon the operator on the theories of nuisance,³³ of escape of a dangerous agency,³⁴ or of violation of a statute making such action a penal offense.³⁵ Here we have the salt water flowing from the operator's formation, or from a formation drilled into by the operator, into another's formation. It would seem only logical that the courts which hold the operator absolutely liable in the one case would also hold the operator absolutely liable in the other case.

If the courts would find the lower lessee liable in the above situations, would they also find the common lessor jointly liable? In *Hein v. Shell Oil Co.*,³⁶ the court said that a "lessor . . . cannot interfere with the rights of the lessee and with his operations upon the leased premises, and the law implies a covenant of quiet enjoyment."³⁷ Leasing to a second lessee who subsequently damages or interferes with the first lessee's rights would seem to be an interference with the first lessee's rights on the part of the lessor. Under such circumstances it would seem that the lessor also violated the covenant of quiet enjoyment. Logically it would seem to follow that the lessor would be liable in damages if the second lessee interferes with the rights of the first lessee. If the lessor knew in advance that he was going to lease by separate formations he could attempt to protect himself by inserting a disclaimer of liability for such damages in each lease.

A proceeding in the nature of a bill of discovery as established in *Union Oil Company of Calif. v. Reconstruction Oil Company*,³⁸ and herein discussed should be available to the lessor or the lessees of other formations to determine if the lessee of the lower formation is actually draining oil and gas from the upper formations. This proceeding should be allowed for the same reasons given in the herein contained discussion on obtaining information as to which formation the well is bottomed in.

IV.

Fourth, as between two lessees of separate formations or strata, who has the better right to the use of the surface? Usually there will be room for each to explore for and develop the oil and gas in his own formation. However, if the tract of land is small, or if there are locations more favorable to drilling or if the tract is covered by a spacing regulation, there may be conflict between the lessees as to who has the better right to the surface.

As between the lessor and the lessee, the lessee has the better right to such use of the surface as is reasonable and necessary to discover and produce the oil and gas present,³⁹ therefore it could be argued that each

33. 4 Summers, § 655, n. 58.

34. Id. at 59.

35. Id. at 60.

36. 315 Ill. App. 297, 42 N.E.2d 949 (1942).

37. Id. at p. 299, 42 N.E.2d 952; see also *Giller v. Hollyfield*, 176 Ark. 861, 4 S.W.2d 526 (1928); 4 Summers, op. cit. supra, § 652, n. 8.

38. 4 Cal. Rep.2d 541, 51 P.2d 81 (1935).

39. See note 20 supra.

of the two lessees have the same right in relation to the oil and gas present in their respective formations. This does not solve the problem between the two lessees, however.

If the leased tract is small, or if the lessees both want to drill from the same location, or if a spacing regulation says that only one well can be drilled on the leased tract, the first lessee to commence drilling would seem to be in a better position as he has already taken the location. Because of his better position, could the lessee who first commenced drilling control? The answer would seem to be yes, especially if he were also the first to obtain a lease on this tract of land and if the second lessee had knowledge of the prior lease. If the second lessee were first to commence drilling or if he did not have notice of the prior lease, will he control, be subordinated, or be on an equal basis with the prior or drilling lessee? If the lessees are on an equal basis how can their conflict be resolved. These questions are at present unsolved.

V.

Fifth, what would happen if the particular formation that was separately leased, did not in fact exist under the described tract of land. A formation may exist under an adjoining tract of land and still not exist under the described tract because it has been pinched out by an unconformity or otherwise displaced.⁴⁰ Simplified drawing of such situations are shown in Fig. 2 of the Appendix.

A strong argument could be made that a lease of a separate formation should be rescinded if the formation leased was not present under the described tract of land and if the parties to the lease did not have such knowledge at the time the lease was executed. In support of this argument, it should be pointed out that contracts may be reformed as the result of a mutual mistake.⁴¹ However, reformation would not work in this case, instead the lease should be rescinded as the necessary subject matter does not in fact exist.⁴² Consequently, there should be restitution of the bonus and delay rentals paid by the lessee.⁴³ Mutual mistake of fact is grounds for cancellation of an assignment of an oil and gas lease.⁴⁴ Another theory which could support this argument is that the lease should be rescinded on the grounds of impossibility of performance,⁴⁵ or frustration of purpose.⁴⁶

A strong argument could also be made that the lease should not be rescinded as it was purely speculative from the beginning. All oil and gas leases are executed on the speculation that oil and gas will be discovered

40. Lalicker, *op. cit. supra*, 117; Longwell, *op. cit. supra*, 268, 324, 325; Uren, *op. cit. supra*, 21, 24.

41. Corbin, *Corbin on Contracts*, § 614 (One Vol. Ed. 1952).

42. *Id.* at § 600.

43. *Id.* at § 617.

44. *Rowland v. Cox*, 121 Ky. 341, 89 S.W. 215 (1905).

45. Corbin, *op. cit. supra*, § 1339.

46. *Id.* at § 1356.

and produced. The only distinction here is that the speculation was that oil and gas might be discovered and produced from a particular formation. If that formation is not present, naturally no oil and gas can be produced from it. Ordinarily the lessee suffers the loss of the bonus, delay rentals and drilling costs when he gambles on an oil and gas lease and fails to find any oil and gas. Therefore, it would seem only right that he suffer the loss when he gambles on an oil and gas lease of a separate formation and fails to find any oil and gas. The reason for such failure would seem to be unimportant.

In *Bell v. Kirby Petroleum Co.*,⁴⁷ a contract to assign an interest in an oil and gas lease was not set aside when the land failed to produce sufficient amounts of oil. The assignees contended that it should be set aside on the ground of mutual mistake, but the court in overruling this contention said that the contract was purely speculative on the part of the assignee.

CONCLUSION

The problems discussed above illustrate some of the dangers involved in leasing separate formations or strata for oil and gas purposes. The existence of these dangers should point out the need for extreme caution when entering into a lease of this nature. Some of these dangers, however, are not overwhelming and with proper pre-investigation and proper draftsmanship, they can be overcome.

When drafting a lease of this type a clause should be inserted concerning the lessees' use of the surface and subsurface. Included within this clause should be the right to drill through all formations overlying the leased formation. Also included should be an arrangement whereby the different lessees have the right to the use of a specific portion of the surface for their operations. An important element of this clause would be a statement that not only the lessee under this lease but all future lessees of formations under this tract of land are bound by this provision, and that the landowner-lessor will include similar provisions in all other leases of separate formations under this tract of land. If separate formations have already been leased, and such a clause was not in the prior lease, some agreement concerning the same should be entered into with the prior lessees before another lease is executed. If the tract of land is so small that only one well can be drilled on the leased tract of land, another lease of a separate formation should not be entered into.

A clause should also be inserted in the lease concerning the information gained about other formations when drilling to the leased formation. This clause should also include the right of the lessor or lessees of other formations to make subsurface surveys to determine whether the well is bottomed in the proper formation. The clause should also include statements as to who has and who does not have the rights to the information

47. 269 S.W. 170 (1925).

gained. Again a statement should be included in this lease binding the lessor to include similar clauses in other leases of separate formations under this tract of land.

A clause should also be inserted in the lease dealing with the contingency that the leased formation does not in fact exist under the leased tract of land. Such a clause should include standards for the determination of the existence of the leased formation. These standards should state what constitutes a failure to locate the leased formation when drilling at one location and how many wells must prove a failure before it is presumed that the formation does not exist at any location under the leased tract of land.

Finally, the validity of a lease of a separate formation or stratum cannot be established except through future litigation. Investigation and study of cases within each jurisdiction may lead to conclusions on this subject, but these conclusions will be merely speculative. Therefore until the validity of these leases has been directly decided, such leasing could be an uncertain and risky venture.

SILAS R. LYMAN

A P P E N D I X

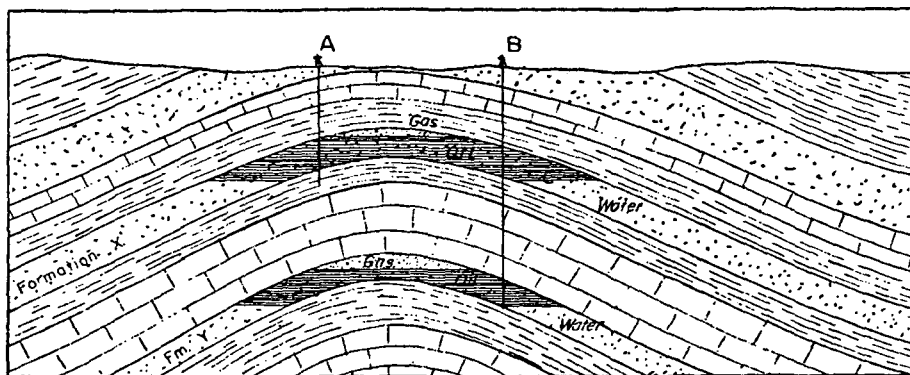


Fig. 1

ANTICLINAL STRUCTURE

Note the sequence of oil, gas and water: the results of the different densities of each. The water is usually saline and supplies up-structural pressure or drive to the oil and gas.

L leased only formation X to A and only formation Y to B. B must drill through A's formation and oil pool to reach his own formation.

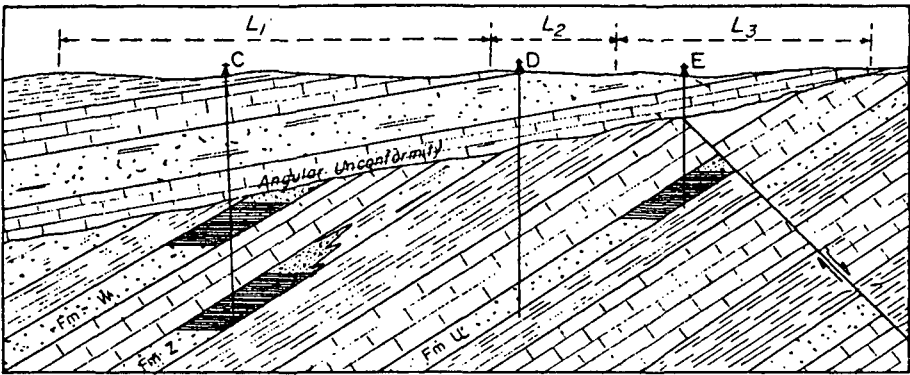


Fig. 2

STRATIGRAPHIC TRAPS: ANGULAR UNCONFORMITY AND FAULT

L₁ leased all the oil and gas under his land to C who drilled and hit two oil producing formations W and Z. L₂, an adjoining land owner, leased only formations W and Z to D who drilled and was unable to locate the leased formations because of the angular unformity. L₃ leased all oil and gas to E who found oil in formation U in a fault trap.