OWNERSHIP OF GEOTHERMAL RESOURCES IN HAWAII

I. INTRODUCTION

Mounting energy problems in the United States have sharpened concerns in Hawaii over the state's heavy reliance on imported petroleum.[1] A major objective of the 1978 Hawaii State Plan is the lessening of this dependence through utilization of natural energy sources. Among the sources under study are solar and wind energy, conversion of growing plants and organic garbage into fuel, the warmth of the ocean's top layers, and the heat of the earth accumulated underground in reservoirs of superheated water or steam—geothermal energy.[2]

A geothermal reservoir has been found on the Island of Hawaii capable of producing electricity with the application of technology already in commercial use at other geothermal areas.[3] However, among the impediments to developing geothermal power in Hawaii is the uncertainty of the ownership of the subsurface reservoirs. There is doubt as to whether they belong to the owners of the overlying land or have been reserved to the state government as "minerals."[4]

The purposes of this comment are exploratory: to identify the causes of the uncertainty, to trace the history of mineral reservations in Hawaii from which the uncertainty arose, to ascertain if case law has disposed of the uncertainty, and to present arguments which may be advanced on either side to resolve the issue. Finally, the divergent approaches to analogous questions of natural resource ownership taken by the Hawaii Supreme Court and the Federal District Court in Hawaii in recent years are contrasted to indicate that the choice of forum may be important in resolving the problem.

---

[1] Approximately 92 per cent of the energy used in Hawaii is derived from imported oil. The remainder comes from burning bagasse, the crushed cane residue of sugar mills (7 per cent), and from small, run-of-the-river hydroelectric plants (1 per cent). HAWAII DEPARTMENT OF PLANNING & ECONOMIC DEVELOPMENT, SOLAR ENERGY: HAWAII & THE U.S. ISLANDS OF THE PACIFIC 3–4, 3–6 (1978).

[2] *Id.* at 3–12—3–15.

[3] Geothermal power has been used to generate electricity since 1904. It is a regular energy source in California, New Zealand, Japan, Italy, Iceland, Mexico and the U.S.S.R. and is being developed in the Philippines, Nicaragua, El Salvador and other countries. E. KRUGER & C. OTTE, GEOTHERMAL ENERGY 15–58 (1973).

[4] How geothermal resources are classified for purposes of regulation and possible determination of property rights has been analyzed by Sato & Crocker, *Property Rights to Geothermal Resources*, 6 ECOLOGY L. Q. 250, 486 (1977) [hereinafter cited as Sato & Crocker]. A bibliography of relevant statutes, cases and other materials bearing on the legal classification of the resource is appended to 13 LAND AND WATER L. REV. 349 (1977). Neither article includes Hawaii within its purview.

II. BACKGROUND

In 1976, a geothermal reservoir of exceptionally great heat, quite promising as a power source for generating electricity, was discovered in Puna, Hawaii.[5] This indigenous energy, harnessed to steam turbines, could reduce the state's dependence on expensive imported petroleum and would be environmentally safe.[6] Commercial exploitation has lagged, however, in part because ownership of the resource remains in doubt.[7]

The Hawaii legislature had sought to resolve the uncertainty in 1974 by amending the statutory definition of "minerals" reserved to the State explicitly to include geothermal resources.[8] The intent was to establish state ownership of all aggregations of subsurface heat, whether occurring under private or public lands. Two assumptions underlay the 1974 act: (i) that the Hawaii government had reserved to itself mineral rights on virtually all lands placed in private ownership since the Great Mahele[9]; (ii) that the redefinition of "mineral" to include "geothermal" would apply to reservations made a century or more ago. In fact, the first assumption may be incorrect. Although the number of land patents or grants[10] issued by successive governments of Hawaii which omit mineral reservations is unknown,[11] it is apparent that many private estates are held without explicit reservations. Whether mineral reservations can be inferred from the grant or patent is not clear.[12] Reasons for the ambiguity are to be found in the origins of private land ownership in Hawaii.

---

[5] At about 6,000 feet below sea level, the experimental well drilled by the University of Hawaii Geothermal Project produces slightly saline water heated to more than 350° Celsius by convection from magma extruded at great depths by the nearby Kilauea Volcano. The hot water, kept under enormous pressure by the impermeable rock which seals off the reservoir, rises in the well and, as it approaches normal atmospheric pressure, flashes into steam which can be used to power the turbines of an electric generator. For a description of the well *see* KINGSTON, REYNOLDS, THOM & ALLARDICE, LTD., HAWAII GEOTHERMAL PROJECT WELL COMPLETION REPORT, HGP-A (Sept. 1976) and YUEN, CHEN, KIHARA, SEKI, TAKAHASHI, HGP-A RESERVOIR ENGINEERING, UNIVERSITY OF HAWAII (Sept. 1978).

[6] R. KAMINS, REVISED ENVIRONMENTAL IMPACT STATEMENT FOR THE HAWAII GEOTHERMAL RESEARCH STATION (Hawaii Department of Planning & Economic Development, 1978).

[7] Uncertainty as to property rights in geothermal resources in Hawaii was identified as a major barrier to development by counsel for Atlantic-Richfield Company when testifying before the Senate Committee on Energy and Natural Resources of the Hawaii Legislature on January 23, 1978.

[8] Act 241, 1974 Haw. Sess. Laws, amending HAW. REV. STAT. §182-1 (1978). Other states by statute have either defined geothermal resources as water resources or have classified them as *sui generis*. Any one of these definitions is defensible since a geothermal resource is the heat of the earth, usually transmitted by steam or hot water (the case in Hawaii) in which are dissolved silicates and other minerals. *See infra* at p. 79, and, for a comprehensive analysis (except for Hawaii) of geothermal definitional statutes, Sato & Crocker, *supra* note 4, at 486–95.

[9] The Mahele ("division" or "portioning") was the action taken by the government of Kamehameha III to replace the ancient, basically tenurial system of landholding with one grounded upon fee simple property rights based on Anglo-American law. *See infra* notes 13 and 59.

[10] Patents were deeds issued by the Kingdom of Hawaii to lands awarded under and following the Great Mahele, as briefly described *infra*, notes 13 and 23, while documents of title to other lands, conveying private ownership after the Mahele, were designated as "grants." Grants far outnumber patents.

[11] Most of the grants from which the mineral reservation was omitted were issued between 1900 and 1955, as will be shown below. During that 55-year period, the territorial government granted "over 8,000" patents. K. LAU, MINERAL RIGHTS & MINING LAWS 20 (Legislative Reference Bureau, University of Hawaii, 1957) [hereinafter cited as LAU].

[12] An examination of the patents and grants underlying title to parcels adjacent to the initial geothermal exploration sites in Puna, (corresponding to Sections 3 and 4, Zone 1, of the real

From the beginning of the Mahele in 1848[13] until 1900, the patents which evidenced fee simple ownership usually included a standard provision reserving to the Hawaiian government "all mineral or metallic mines of every description."[14] The phrase derived from an 1845 statute which created a Land Commission to administer the Mahele.[15] This act prescribed the language of fee simple patents issued by the government, including the foregoing phrase. The statutory prescription was omitted from the Civil Code of 1859[16]; nevertheless, the same form of patent, with identical mineral reservation, continued to be used with seemingly few exceptions until after Hawaii was annexed by the United States.[17]

When Hawaii became a territory in 1900, the mineral reservation was dropped from the patent form. Even when new patents were issued on subdi-

property tax map for the Island of Hawaii) made in 1977 for the State Department of Planning and Economic Development showed that 57% of the area (17,469 acres) was either owned by the State or held under an explicit mineral reservation to the State; 12% (3,764 acres) was clearly not under a reservation; approximately 30% (9,283 acres) was held by private owners under documents lacking an explicit reservation, but deriving from land grants originally patented subject to an explicit reservation. (Examples of the latter category are given *infra* note 19.) There is no reason to believe that the Puna district is unrepresentative of the entire state with respect to the prevalence of mineral reservations. In any event, the results of the search show that explicit reservations to the State of mineral rights, although extensive, are far from being universal.

[13] Technically, the Mahele—or division of lands between chiefs and konohiki ("landlords") on the one hand and the sovereign on the other, recorded in the "Mahele Book"—was completed between January 27 and March 7, 1848. However, as used here as a short-hand term for the installation of an essentially allodial system in Hawaii, the "Mahele" also comprehends the Kuleana Act of 1850 and other legislation under which land went into private ownership during the entire second half of the nineteenth century, as catalogued by L. CANNELORA, in THE ORIGIN OF HAWAII LAND TITLES AND OF THE RIGHTS OF NATIVE TENANTS, (1974), and narrated by S. DOLE in EVOLUTION OF HAWAIIAN LAND TENURES, reprinted in HAWAIIAN HISTORICAL SOCIETY PAPERS, No. 3 (Dec. 5, 1892). J. CHINEN, THE GREAT MAHELE (1958) [hereinafter cited as CHINEN], is an authoritative source for the events of 1848.

[14] Patents written in Hawaiian phrased the reservation "*ua koe nae i ke aupuni na mine minerala a me na metala a pau.*"

[15] *Laws of Kamehameha III,* Vol. 1, 107, subsequently reenacted as Art. 4, Ch. 7, Pt. I of *An Act to Organize the Executive Departments of the Hawaiian Islands,* 1845–46 Haw. Sess. Laws 107, *reprinted in* REV. LAWS. HAW. 2120 (1925). "This [statute] we must consider as the foundation of all titles to land in this Kingdom, except such as come from the King, to any part of his reserved lands, and excepting also the lists of Government and Fort lands reserved." Thurston v. Bishop, 7 Haw. 421, 429 (1888). "It was this Commission that, with the exception of a few awards made to chiefs by the Minister of the Interior . . . settled and established the inception of private land titles in this Territory." Territory of Hawaii v. Liliuokalani, 14 Haw. 88, 104 (1902).

[16] As noted in §1491 of the CIVIL CODE of 1859. The Hawaii Supreme Court held that the omission constituted a repeal. In re Application of Robinson, 49 Haw. 429, 421 P.2d 570 (1966).

[17] From the examples of patents issued by the successive regimes of Hawaii presented by J. CHINEN, ORIGINAL LAND TITLES IN HAWAII (1961), from the discussion of R. KUYKENDALL, THE HAWAIIAN KINGDOM, 1778–1854, 282–98 (1957) [hereinafter cited as KUYKENDALL], and from an examination of some 300 patents in the course of the Puna land research (*supra* note 12), the following chronology of practice prior to annexation with respect to the mineral reservation may be constructed:

a. Pre-1848: Before the Mahele, a few royal grants were made without any mineral reservation, notably in Manoa Valley, Oahu, and Makawao, Maui, where in 1846 about a thousand acres were sold off as an experiment in fee simple ownership.

b. 1848–1892: Royal patents, even after the repeal of the statutory reservation clause in 1859, included a mineral reservation, *except*—

(1) Warranty ("Kamehameha") deeds, issued up to 1865, conveying title to portions of the monarch's own lands which he sold; and

(2) Quitclaim deeds, issued by the Minister of the Interior around 1882.

c. 1892–1893: Land patents issued by the Provisional Government continued to use the same mineral reservation clause as included in the royal grants of the Kingdom.

d. 1893–1900: The clause was included in patents issued by the Republic of Hawaii.

visions of large tracts originally patented subject to the mineral reservation,[18] the territorial land office omitted the phrase.[19] In 1955 the Territory again began to insert reservations in patents, but not consistently.[20] In 1963, after a flurry of excitement over the possibility of mining bauxite locally, the state legislature enacted a statute declaring that "all land patents, leases, grants or other conveyance of state land shall be subject to and contain a reservation to the State of all the minerals. . . . "[21] Since then the reservation has remained standard in land grants, but between 1900 and 1963 an undetermined number of grants were issued without it. Only if the reservations are implicit in these conveyances and others lacking it can it be assumed, as did the 1974 Legislature, that all private lands in Hawaii are subject to a mineral reservation.

III. Question of Implicit Mineral Reservations

In the absence of a sustained commercial interest in mineral exploitation, there has been little occasion to litigate mineral rights in Hawaii; to date, there is only one recorded case. The Hawaii Supreme Court, in *In re Robinson*[22] held that the 1845–59 statutory reservation was "self-effectuating" and was validly included in royal patents of that period even though lacking in the Land Commission award which preceded the patents.[23] However, the holding in *Robinson* is probably limited to lands distributed pursuant to Land Commission awards; it explicitly leaves open the question of whether a reservation can be implied in patents issued after the 1859 repeal of legislation prescribing the form of the patent.[24]

Arguably, the government of Hawaii, by including a mineral reservation in the statute which implemented the Great Mahele[25] and by retaining it throughout the time of the Kingdom, Provisional Government and Republic as a standard phrase in land patents, firmly established the intent of the sovereign

---

[18] The principle that a second patent might be issued on land already patented "by name only" (lacking a metes and bounds description) was established in Greenwell v. Paris, 6 Haw. 315 (1882).

[19] *E.g.*, Royal Patent 4497 (on Land Commission Award 8559) was issued to C. Kanaina on June 11, 1861, subject to the mineral reservation; on November 13, 1905, Land Patent 8177 was issued on the same land to Rufus A. Lyman. The Kanaina patent was "by name only," meaning that the tract was identified only by its Hawaiian place name. A detailed boundary description was supplied, as required by the laws implementing the Mahele, by the attorneys for the new patentee. An adjacent area in Puna, Hawaii, was covered by Land Commission Award 8559B, *apana* (portion) 15. Grant 8088, issued in 1899, contains the mineral reservation, but Grant 8094, issued on the same *apana* in 1909, does not.

[20] In 1955, a comprehensive reservation was incorporated in many of the land patents issued by the Territory of Hawaii, and is found in patents presently issued. The reservation usually follows a reservation of water rights and as currently incorporated [1957] is phrased in the following language: "RESERVING, ALSO to the Territory of Hawaii in perpetuity all rights to clay, minerals, mineral substances, oil and natural gases of every sort and description, that may be upon the surface or in or under the land . . . " Lau, *supra* note 11, at 2.

[21] Act 11, 1963 Haw. Sess. Laws 9, 10; Haw. Rev. Stat. §182-2(b) (1976).

[22] 49 Haw. 429, 421 P.2d 570 (1966).

[23] The essential steps whereby land titles were created under the Mahele were: (i) The Board of Commissioners issued Land Commission awards to persons deemed qualified to receive title to parcels; (ii) Upon payment of commutation and furnishing of a boundary description, a royal patent—including the mineral reservation—was granted to the awardees. See J. Chinen, *supra* note 13, for a detailed description of the process.

[24] 49 Haw. 429 at 443 n. 14, 421 P.2d 570 at 578 n. 14 (1966).

[25] *See supra* note 15.

to reserve mineral rights in all lands placed in private ownership. Omission of the phrase from some grants, if through inadvertence or neglect on the part of government employees, should not be taken as a waiver of that reservation. As the *Robinson* court noted, if no one contemplated mining when the grants were issued, there may have been no reason "to focus attention on the question" of mineral rights.[26] There is no record of any legislative or gubernatorial directive authorizing territorial officials to omit the reservation from patents covering portions of larger tracts originally granted subject to the reservation.[27] Their acts, which served to convey without consideration possessory rights already reserved by the sovereign, may have been *ultra vires*. The single opinion of the Attorney General of that period concerning mineral rights[28] did not address the question of these twice-patented lands.

The argument for finding an implied reservation is weaker for those lands initially patented after establishment of the territorial government. The general exclusion of the mineral phrase from the thousands of patents issued between 1900 and 1955[29] cannot plausibly be ascribed to mere oversight[30] by functionaries who failed to execute a policy of reserving mineral rights. Early in the territorial period, the question of mineral reservations was raised by the Commissioner of Public Lands, who asked whether the reservation formerly contained in patents had been made in compliance with any law. The Attorney General replied that because of the 1859 repeal of the 1845 statute prescribing the form of royal patents, there was no prohibition on the outright sale of mineral lands.

> While I do not find any law which either expressly or by necessary implication permits you to dispose of mineral land in the Territory of Hawaii, yet there being no prohibition of such disposition I think it will be safe to advise you under the circumstances that a sale by you of a tract of land of a mineral character as distinguished from agricultural would probably be held to be valid.[31]

There is no intimation here that the territorial government intended to reserve mineral rights.

In sum, there is only one basis within traditional legal doctrine[32] for concluding that land originally conveyed to private owners without express reservation of subsurface rights is nevertheless subject to a mineral reservation. Since the beginning of an allodial system in Hawaii, a general practice of reserving mineral rights had existed, and the legislature had not sanctioned a different practice. Such an argument applies most forcefully to those lands, extensive in the known geothermal zone of Puna,[33] where fee simple estates first created

---

[26] 49 Haw. 429 at 441, 421 P.2d 570 at 577 (1966), *citing* U.S. v. Cal., 332 U.S. 19, 39–40 (1947).

[27] *See supra* note 19.

[28] 379 OP. ATT'Y GEN. (Haw. 1906).

[29] LAU, *supra* note 11, at 12.

[30] The Organic Act which established the territorial government itself provided a reminder of the potential value of mineral rights in its provisions concerning mining leases on public lands at §73(1).

[31] 379 OP. ATT'Y GEN. (Haw. 1906). The court in *Robinson* (note 22 *supra*) did not comment on the contents or merits of this opinion.

[32] A different perspective for judgment is provided by the doctrine or social philosophy labeled "public trust," discussed *infra* note 94.

[33] Approximately 30 percent of the acreage adjacent to the experimental well in Puna is held under patents with such a history. *See supra* note 12.

under royal patents which did contain the standard reservation were subsequently granted again by the Territory with no reservation.[34] At least with respect to such lands initially patented before 1862,[35] it can be argued that the reservation, once made by the Kingdom, remained in force for the benefit of its successor in interest, the Territory of Hawaii, absent legislative authorization to waive the reservation.[36]

IV. Question of Mineral Reservations Made Prior to 1974

Irrespective of whether implied mineral reservations exist, there remains the question of how far back in time geothermal resources have been covered by any reservations, whether implied or explicit. Have the rights reserved to the government of Hawaii always extended to geothermal resources, or was the reservation applied to hot water reservoirs only after the statutory definition of "mineral" was amended in 1974 to include "geothermal resources?"[37] The Ninth Circuit Court of Appeals recently ruled in *United States v. Union Oil Co.*

---

[34] Before 1862, many grants were described only by their Hawaiian place name.

> [E]very portion of land constituting these Islands was included in some division, larger or smaller, which had a name, and of which the boundaries were known to the people living thereon or in the neighborhood . . . [During the Great Mahele] no body of surveyors could have been found . . . who might have surveyed these large estates within the lifetime of half of the grantees . . . . The "Mahele" or division was, therefore, made without survey. Tracts of land known to the Hawaiians as an ahupuaa or ili were awarded to those entitled by name of the ahupuaa or ili. By such grant was intended to be assigned whatever was included in such tract according to its boundaries as known and used from ancient times.

In re Boundaries of Pulehunui, 4 Haw. 239, 240–41 (1879).

By an act of June 19, 1852, the Board of Commissioners to Quiet Land Titles which administered the Mahele was authorized to award lands to chiefs and *konohikis* ("landlords," approximately) "by name [of the land] only." *An Act Relating to Land Titles of Konohikis,* 1852 Haw. Laws 28, reprinted in Rev. Laws Haw. 2144 (1925). This authority remained in effect for ten years, until, by an Act of August 23, 1862, a Boundary Commission was created and surveys were required for all land awards. 1862 Haw. Sess. Laws 27. *Cf.* State v. Midkiff, 49 Haw. 456, 421 P.2d 550 (1966), adjudicating claims to land awarded "in name only."

[35] Since, as just noted, legislative authority to issue patents "in name only" was removed in 1862, such patents issued after that year may have been completely invalid, meaning that the lands affected were not lawfully placed into private ownership until a subsequent grant by the Territory, at which time the executive may or may not have had authority to alienate them without reserving mining rights.

[36] The argument questions the authority of the territorial Superintendent of Public Works, who succeeded to the powers and duties of the Republic's Minister of the Interior (Pratt v. Holloway, 17 Haw. 539 (1906)), to grant an interest in land which was previously reserved by the Hawaii government. No judicial decision clearly dispositive of the question has been found, but it has been held that where the sale of the land covered by a patent had been previously withheld from sale by the Hawaii government, the patent is void for want of authority in the Superintendent. Territory v. Gay & Robinson, 25 Haw. 651 (1920). It can be otherwise argued that the discretion vested in the Superintendent to be inferred from the Opinion of the Attorney General (cited *supra* note 31) was lawfully exercised in granting mineral rights along with the surface estate, absent any statutory prohibition. Territory v. Gay & Robinson could be distinguished as referring only to the extent of the surface estate which the government could convey, with no applicability to the reservation of subsurface rights from a patent lawfully issued.

[37] Act 241, 1974 Haw. Sess. Laws 700, amending Haw. Rev. Stat. §182–1 (1976). The amended statute defines "geothermal resources" broadly, to include the "natural heat of the earth, the energy, in whatever form, below the surface of the earth present in, resulting from, or created by, or which may be extracted from, such natural heat . . . " Technology does not yet exist for extracting heat directly from magma, the ultimate geothermal heat source in Hawaii. Since hot water or steam is now the medium necessary for exploitation of the heat, discussion is limited to reservoirs of geothermal liquids. For a description of alternative modes of utilizing geothermal resources, *see* Austin, *Technical Overview of Geothermal Resources,* 13 Land & Water L. Rev. 9 (1977).

of California[38] that the "mineral" rights in land in California reserved to the federal government did cover geothermal resources. Is the decision dispositive of the issue in Hawaii?

Union Oil was a quiet title action, filed by the United States Attorney General[39] to ascertain whether the reservation to the United States of "all coal and other minerals" in land granted under the Stock-Raising Homestead Act of 1916[40] applied to geothermal reservoirs. The Court of Appeals held that geothermal resources were included in the mineral reservation,[41] predicating its opinion on Congressional intent, as evidenced by legislative history. It found that before 1916 the executive branch had called the attention of Congress to abuses and inefficiencies that had resulted from granting for agricultural use public land which overlay fuel deposits and had recommended separate disposition of surface and subsurface rights. Beginning in 1909, Congress enacted statutes which reserved minerals in various classes of land to be sold.[42] Examination of the legislative record showed that (i) the basic purpose of the 1916 Act was to expand agriculture, and (ii) Congress, in enacting the mineral reservation provision, was particularly concerned about preserving fuel deposits. Objection to the large area (640 acres) to be given each patentee was countered by assurances to Congress that the grants were limited to the surface estate and that even oil, arguably not a mineral, was covered by the reservation.[43]

The very language of the statute suggested to the court that Congress intended the reservation to be liberally construed. It states: "All . . . patents issued under [this Act] . . . shall be subject to and contain a reservation to the United States of all the coal and other minerals. . . . "[44] Although geothermal steam was not used as a power source in the United States in 1916,[45] the court reasoned that the express reservation of coal plus the intent of Congress "to implement the principle urged by the Department of Interior and retain governmental control of subsurface fuel sources"[46] made it clear that the legislative purpose would be served by declaring geothermal resources to be "mineral" and thus reserved to the federal government.

> [T]he mineral reservation is to be read broadly in light of the agricultural purpose of the grant itself, and in light of Congress's equally clear purpose to retain subsurface resources, particularly sources of energy, for separate disposition and development in the public interest. Geothermal resources contribute nothing to the capacity of the surface estate to sustain livestock. They are depletable subsurface reservoirs of energy, akin to deposits of coal and oil, which it was the particular objective of the reservation

---

[38] 549 F.2d 1271 (9th Cir. 1977).

[39] The Geothermal Steam Act of 1970 directed such suits whenever the Secretary of the Interior found that geothermal development of lands subject to the reservation was "imminent" (30 U.S.C. §1020(b) (Supp. 1978)) in order to resolve uncertainty as to ownership of the resource and thus encourage its development. The lands subject to this suit are in the vicinity of The Geysers, approximately 80 miles north of San Francisco, site of the only major commercial development of geothermal energy in the United States. With an installed capacity well above 500 MW, it is the largest geothermal power facility in the world.

[40] 43 U.S.C. §299 (1964).

[41] *Reversing* 369 F. Supp. 1289 (N.D. Cal. 1973).

[42] 549 F.2d at 1275.

[43] *Id.* at 1277–78.

[44] 43 U.S.C. §299 (1964).

[45] 549 F.2d at 1273. Italy was then the only nation utilizing geothermal power to generate electricity, a technology it adopted in 1904.

[46] *Id.* at 1276.

clause to retain in public ownership. The purposes of the Act will be served by including geothermal resources in the statute's reservation of "all the coal and other minerals." Since the words employed are broad enough to encompass this result, the Act should be so interpreted.[47]

Against the extensive legislative record relied on in *Union Oil* to construe the scope of the federal reservation, the page in Hawaii is virtually blank. Little is known of the origin of Hawaii's mineral reservation beyond the bare facts already stated.[48] In 1845 the legislature enacted a mineral reservation provision[49] as part of a complex statute drafted by John Ricord,[50] the first Attorney General of Hawaii. The statute was subsequently incorporated into an organic act to organize the government of Kamehameha III.[51] In 1859 the statutory mineral reservation provision was repealed,[52] not to be reenacted until 1963.[53]

Why did the Kingdom of Hawaii adopt a reservation of minerals just as the Great Mahele was about to begin? And why did the government delete the reservation from its statutes when the Mahele was largely completed, but nevertheless continue to use the clause as boiler-plate in its land patents throughout the rest of the century?[54] Neither the sparse legislative history of the period, nor Kuykendall, the premier investigator of Hawaii's early political history,[55] sheds any light on the matter. A Hawaii jurist expressed understandable puzzlement by the presence of this exotic element in the first land laws of a jurisdiction which lacked metals and had no inkling that it possessed any mines.[56]

The intended scope of the Hawaii reservation cannot be readily inferred from the basic purpose of the land distribution program to which it was incidental. Indeed, the very attempt to analogize from *Union Oil* reveals the disparity between the circumstances of the federal homesteading act and those of the Mahele.[57] Whereas the federal program had the limited purpose of encouraging ranching and affected only a relatively small portion of the public

---

[47] *Id.* at 1279.

[48] *See* p. 70 *supra.*

[49] *See supra* note 15.

[50] KUYKENDALL, *supra* note 17, at 262–63.

[51] *See supra* note 15.

[52] By explicit omission from the CIVIL CODE of 1859, §1491.

[53] Act 11, 1963 HAW. SESS. LAWS 9; HAW. REV. STAT. §182-2 (1976).

[54] *See* p. 70 *supra.*

[55] Successive parts of two [organic] acts were submitted by Ricord first to his ministerial colleagues for examination and revision, and afterwards to the legislative council for discussion, amendment, and final action. The two houses put the drafts through three readings, "debated them section by section with patience and critical care, altering and amending them in numerous essential respects;" and finally passed them. ... [However] [w]e have no data from which to reconstruct the debates in the legislative council ...
KUYKENDALL, *supra* note 17, at 262.

[56] That the mineral reservation must have been "some foreigner's idea as it is certain that minerals, metals, or mines played no part in the economy or life of Hawaii at that time" is the conclusion of Justice Cassidy (dissenting) In re Application of Robinson, 49 Haw. 429, 444 n.1, 421 P.2d 570, 579 n.1 (1966). Had the Justice been inclined to point his finger at some particular foreigner, the logical target would have been the primary drafter of the statute, Attorney General Ricord, a lawyer educated in New York who sojourned in Florida, Louisiana, Texas, Arizona and Oregon before coming to Hawaii in 1844. Muir, *John Ricord*, 52 SW. HIST. Q. 49 (1948). That was four years before the California gold strike, but 16 years after a sizeable gold rush began at Duke's Creek, Georgia, an event which may have impressed this traveller through the South.

[57] *See* p. 75 *supra.*

domain, the Great Mahele was an act of primary importance—the creation of a legal regime for real property in the Anglo-American mode—which applied to all lands in the Kingdom. The purposes of an act as fundamental as the Mahele were appropriately broad and diffuse. In the Statement of Principles adopted by the Board of Commissioners that administered the Mahele, and in judicial opinions interpreting them, diverse motives were ascribed for the creation of an allodial system, all stemming from the kingly concerns and enlightened self-interest attributed to Kamehameha III. These include promoting social justice by giving commoners a more secure position through land ownership; encouraging greater efficiency in land use through the incentives of private ownership; gaining the respect of western nations accustomed to the allodial system[58] and safeguarding the private estate of the King from possible invaders.[59] Since none of these purposes provides a rationale for interpreting the intended scope of the mineral reservation made incident to the Mahele, *Union Oil* seems clearly distinguishable from, and hence not dispositive of, the "scope" question posed in Hawaii.

Lacking both clear judicial precedent and any indication of legislative intent, one might construe the mineral reservation in Hawaii by analogizing the law applying to petroleum, an energy source which also occurs in natural reservoirs of fluid and gas, and which has been the subject of extensive litigation. The rule in "perhaps a majority of states"[60] is that a reservation of "minerals" includes both oil and gas.[61] However, the applicability by analogy of this

---

[58] "Ancient practice, according to testimony, seems to have awarded to the tenant less than justice and equity would demand, and to have given to the King more than the permanent good of his subjects would allow." Statement of the Board of Commissioners to Quiet Land Titles, February 9, 1846, *reprinted in* S. BALLOU, THE LAWS OF HAWAII 142 (1898).

> The Hawaiian rulers have learned by experience . . . that the well-being of their country must essentially depend upon the proper development of their internal resources, of which land is the principal; and that in order to [sic] its proper cultivation and improvement, the holder must have some stake in it . . . They perceive by contact with foreign nations, that such is their uniform practice . . . They are desirous to conform themselves in the main to such a civilized state of things, now that they have come to be a nation in the understanding of older and more enlightened Governments.

Id. at 146.

[59] Estate of His Majesty Kamehameha IV, 2 Haw. 715, 722, 725 (1864). The language of the court, like that of the Board of Commissioners quoted in the preceding note, implies that Kamehameha III deliberately chose to institute the Great Mahele. However, accounts of the period indicate that, a decade or more before the Mahele began, the youthful monarch had lost a power struggle with the chiefs who had accepted Christianity, and he no longer determined government policy. Real power lay with his advisers and with a faction of the chiefs, notably Kinau, the *kuhina nui* ["prime minister," in free translation].

> Early in 1835 Kauikeaouli [Kamehameha III] conceded that the chiefs had won. . . . He approved a new code of laws . . . and he placed law enforcement in the hands of Kinau. From that time on he virtually abandoned the direction of the affairs of state. He spent most of his time with foreigners, riding, sailing, bowling, or playing billiards. . . .

G. DAWS, SHOAL OF TIME: A HISTORY OF THE HAWAIIAN ISLANDS 92 (1968). *See also* R. KUYKENDALL, THE HAWAIIAN KINGDOM, *1778–1854*, 136 (1957).

[60] R. HEMINGWAY, THE LAW OF OIL & GAS 1 (1971).

[61] The difficulty inherent in determining whether or not oil or gas or any other substance is included within the terms of a grant or reservation of "minerals" lies in the traditional approach of attempting to find and to give effect to an intention to include or to exclude specific substances, when, as a matter of fact, the parties had nothing specific in mind on the matter at all. . . . The severance of "minerals" generally should be construed to sever from the surface ownership all substances presently valuable in themselves, . . . whether their presence is known or not known, *and all substances which become valuable through the development of the arts and sciences*, and that nothing presently or prospectively valuable as extracted substances would be intended to be excluded from the mineral estate.

purported rule in Hawaii may be questioned, given the phrasing of the reservation included in grants made under the Mahele and up to 1955, which read "all mineral and metallic mines of every description."[62] Here, "mineral" is an adjective limiting "mines," from which it can be argued, by narrow construction, that the reservation was not of all minerals but only of those which occur in mines, i.e., hard minerals.[63] Since 1957, Hawaii statutes have defined "mining" and "mining operations" broadly, to include the removal of oil and gas, as well as solid minerals,[64] but these latter-day definitions do not resolve the ambiguity of the reservation contained in earlier grants.

Nor does general property law provide a clear answer to the question of what mineral rights the Hawaii government had reserved. The old common law maxim of *cujus est solum, ejus est usque ad coelum et ad inferos*[65] suggests that the fee simple estates created by the Mahele include rights to all subsurface materials not explicitly excluded by the terms of the grant or by the operation of law.[66] However, even in American jurisdictions which adopted the common law in its fullest scope, there are ample precedents limiting the *cujus est solem* doctrine, notably with respect to rights to percolating subsurface water claimed by an owner of the surface estate. After reviewing these precedents as they may apply to mineral reservations, Sato and Crocker conclude that the doctrine has been so limited by judicial construction and truncated by legislation that "a state may proceed to allocate geothermal resource rights with a clean slate"[67] and without concern for the old maxim. A fortiori, that would be true in Hawaii, where the common law was specifically adopted subject to "Hawaiian usage" in practice before 1893.[68] Such usage, coupled with certain native rights guaranteed by statute, have placed numerous limitations on the possessory rights of landowners.[69] For example, residents of an area may cross private lands to reach the beaches, to take firewood and certain building materials, to

---

F. TRELEASE, H. BLOOMENTHAL & J. GERAUD, NATURAL RESOURCES 733 (1965), *quoting* 1 E. KUNTZ, LAW OF OIL AND GAS 305 (1962) (emphasis supplied).

[62] *See supra* note 15 for legislation setting the language of the reservation.

[63] The diversity of interpretation given to "mine" is illustrated by the following opinions: "A 'mine' is an excavation in the earth made for the purpose of getting metals, ores or coal." Pruett v. O'Gara Coal Co., 165 Ill. App. 470, 489 (1911); "[Mine] does not comprehend every possible excavation by which mineral matters are brought to the surface. It appears to be definitely settled in most jurisdictions that a gas well or oil well cannot be regarded as a mine." Lambert v. Pritchett, 284 S.W.2d 90, 91 (Ky. 1955); "Oil is a mineral, and . . . an oil well is a mine." Mid-Northern Oil Co. v. Walker, 65 Mont. 414, 427, 211 P. 353, 356 (1922).

[64] The 1957 statute on strip mining and the 1963 statute on state mineral reservations both define mining to include the extraction of all minerals, "whether solid, gaseous, or liquid." HAW. REV. STAT. §§181-1, 182-1 (1976).

[65] "To whomever the soil belongs, he owns also to the sky and to the depths." 2 BLACKSTONE COMMENTARIES 18 (1902).

[66] Opposed is the doctrine that every land grant by the sovereign is to be construed "most strongly" against the grantee, that nothing passes "except what is conveyed in clear and explicit language, inferences being resolved for the government." Pace v. State, 191 Miss. 780, 4 So. 2d 270, 274 (1941).

[67] Sato & Crocker, *supra* note 4, at 319.

[68] "The common law of England, as ascertained by English and American decisions, is declared to be the common law of Hawaii in all cases, except as . . . established by Hawaiian usage. . . . " HAW. REV. STAT. §1-1 (1976) (originally enacted as 1892 HAW. SESS. LAWS, Ch. 57, §5).

[69] HAW. REV. STAT. §7-1 (1976), reserves these rights to "the people," a term variously construed to mean "tenants" Oni v. Meek, 2 Haw. 87 (1858), those becoming tenants before 1900, Damon v. Tsutsui, 31 Haw. 678 (1930), and any "lawful occupier" of *kuleanas* as against the *ahupua'a*, Dowsett v. Maukeala, 10 Haw. 166 (1895) and Carter v. Territory, 24 HAW. 47 (1917).

use the water supply, and to fish in ocean areas adjacent to private lands.[70] It is by no means evident that a fee simple estate in land, so hedged about with exceptions to its free use and enjoyment by the grantee and his successors, would be construed to include the ownership of geothermal resources.[71]

With no clear guidance from Hawaii law, a court may be influenced by the definition of "geothermal" in other states with known geothermal resources. However, there is no consensus. While Hawaii is the only state to define geothermal reservoirs as "mineral" by statute,[72] California has arrived at the same definition through case law.[73] The statutes of Montana and Wyoming, however, classify the resource as "water,"[74] while in Idaho and Washington it is neither mineral nor water, but a resource *sui generis*.[75] No guidance is to be found in this even division of categories, any of which can be justified, since geothermal resources do occur as water, do carry other minerals, and are indeed *sui generis*.[76]

IV. Policy Considerations

The determination of ownership rights in geothermal resources in Hawaii presents two difficult questions for the courts: (i) is a mineral reservation to be inferred in grants which lack one? (ii) are geothermal resources included in "mineral" reservations made in grants issued before 1974? When confronted with the foregoing questions, the courts may be influenced by the economic consequences of their decision—how it will affect the development of the new resource and the distribution of its benefits—within the constraints of due process.[77]

An economic consideration is the efficiency in utilizing the resource. Because geothermal fluids, like oil and gas, occur in large reservoirs which may underlie several adjacent parcels, under private resource ownership a pattern of beggar-thy-neighbor drilling may occur, as competing exploiters each seek to maximize their take from the common pool. The experience of the oil and gas industry has documented the wastefulness of that mode of extraction, which results in a smaller recovery of the available resource than does a "unitized" exploitation of each reservoir.[78] Unitization can be required by the state even if the resource

[70] Fishing rights of the public, stemming from those recognized by Art. 5, Ch. 6, Pt. I, §§1–8 of An Act to Organize the Executive Departments, 1845–46 Haw. Laws 90–92, are now incorporated in Haw. Rev. Stat. §§188–1 to 188–14 (1976).

[71] Ho'ala Kanawai Inc., a non-profit native Hawaiian association, has asserted that Hawaiians have a special claim to geothermal resources, based on §5(f) of the Admission Act, Pub. L. No. 86–3, 73 Stat. 4 (1959), which requires the State of Hawaii to hold public lands in trust for purposes including "the betterment of the conditions of native Hawaiians." It is not clear if the claim also extends to resources not explicitly reserved to the state. Honolulu Star-Bulletin, July 28, 1978, at A-1, Col. 2.

[72] Haw. Rev. Stat. §182–1 (1976).

[73] Geothermal Kinetics, Inc. v. Union Oil Co. of Cal., 75 Cal. App. 3d 56, 141 Cal. Rptr. 879 (1977); Pariani v. State, No. 657-291 (San Francisco County Super. Ct. June 30, 1977).

[74] Mont. Rev. Codes Ann. §89-867(1) (Supp. 1977); Wyo. Stat. §41-3-901(a) (ii) (1977).

[75] Idaho Code §42-4002(c) (1977); Wash. Rev. Code §79-76.040 (Supp. 1977).

[76] *See* Sato & Crocker, *supra* note 4, at 486-95, for a comprehensive discussion of these statutes.

[77] Violation of due process was found by the U. S. District Court for the District of Hawaii in *McBryde* and *Sotomura*, recent cases dealing with the ownership of other natural resources, discussed *infra* note 95.

[78] Tarlock, *An Environmental Overview of Geothermal Resources Development*, 13 Land & Water

is judged to be privately owned, but experience in the oil and gas field shows that it may be difficult to impose and administer if competition among producing firms is strong.[79] Presently, unitization is provided for but not required under the geothermal drilling rules adopted by the Hawaii Board of Land and Natural Resources.[80]

As maximization of physical recovery from geothermal reservoirs would be more likely under state ownership, so would maximization of the share of product value going to Hawaii interests. Costs of drilling wells and constructing a geothermal power plant of commercial size are so great[81] that it will probably require the finances of a national corporation to exploit geothermal resources. Furthermore, the economies of scale which are characteristic of geothermal production[82] would encourage development by a single producer in any region,[83] such as Puna, or on an entire island. As monopsonist in the market for mineral leases, the developer would enjoy obvious advantages in bargaining with individual landholders for production from their respective tracts. Not the least of these advantages is the company's option of by-passing any particular site for a well and choosing instead an adjacent estate. The government, however, would have the contravening power of a monopolist, if it were held to own all geothermal resources. By statute, the state must put to public auction mineral leases on all public lands,[84] and it may auction leases on private lands where minerals are reserved.[85] With auctions, the state government could more readily maximize royalties and leasehold rents from any reservoir area than would private owners dealing separately with presumably foreign corporations developing the field.[86]

Alternatively, if the state were to maximize the total economic utilization of geothermal resources instead of royalties and rents, as resource owner it would be well positioned to encourage further uses of the hot water in processing and

---

L. REV. 289 (1977). "Unitization" is the requirement of the state that a reservoir be exploited under a common plan for drilling designed to maximize total yield, irrespective of the fact that several parties have rights to drill in that field.

[79] Sato & Crocker, *supra* note 4, at 529–32, drawing upon the history of unitization in California.

[80] DEPT. OF LAND AND NATURAL RESOURCES, REGULATIONS ON LEASING OF GEOTHERMAL RESOURCES AND DRILLING FOR GEOTHERMAL RESOURCES IN HAWAII, Rule 3.15 (June 1978) [hereinafter cited as HAWAII GEOTHERMAL REGULATIONS].

[81] Calculated in 1975 to exceed $100 million for a facility producing 200 MW of electricity. Greider, *Status of Economics and Financing of Geothermal Energy Power Productions*, PROCEEDINGS, SECOND U. N. SYMPOSIUM ON THE DEVELOPMENT AND USE OF GEOTHERMAL RESOURCES 2305, 2311 (May 1975) [hereinafter cited as U. N. SYMPOSIUM]. The total capitalization of the Hawaiian Electric Company, Inc. is less than $500 million. Honolulu Advertiser, Nov. 29, 1978, A-10, col. 1.

[82] C. BLOOMSTER & C. KNUTSEN, THE ECONOMICS OF GEOTHERMAL ELECTRICITY GENERATION FROM HYDROTHERMAL RESOURCES 30–31 (1978) (prepared for the U. S. Energy Research and Development Administration).

[83] Until now, all production at The Geysers, California, has been by the Union Oil-Magma-Thermal Power combine, selling exclusively to the Pacific Gas & Electric Co. Now that the capacity of the field has far exceeded 500 MW, other companies are seeking to develop production. Finn, *Price of Steam at The Geysers*, U. N. SYMPOSIUM *supra* note 81, at 2295. In Hawaii, the principal entrepreneurial interest has been demonstrated by a large oil company, Atlantic-Richfield Co. Honolulu Advertiser, April 29, 1978, C-7, col. 2.

[84] HAW. REV. STAT. §182–4 (1976); HAWAII GEOTHERMAL REGULATIONS, Rule 3.4.

[85] There must be a public auction unless, by two-thirds vote, the Board of Land and Natural Resources grants a mining lease to the occupier of the land. HAW. REV. STAT. §182–5 (1976); HAWAII GEOTHERMAL REGULATIONS, Rule 3.5.

[86] Monopoly profits, including the hypothesized retention by the developer of some of the economic rent at the expense of private landowners, could be captured by Hawaii through taxation, but this means of increasing the state's share of product value is indirect and uncertain.

manufacturing, after the hot water was used to power the turbines of a generating station.[87] Such encouragement could be provided, for example, by setting lower royalty payments[88] for geothermal fluids put to multiple uses.

Regarding geothermal fluids only as a power source for generating electricity, the example of the sole producing field in the United States suggests that government intervention in pricing may be necessary to distribute the economic benefits of geothermal energy more broadly than could owners, developers and appliers of the heat. At The Geysers,[89] the price of steam delivered to the Pacific Gas & Electric Company is calculated under a formula essentially based on the price of alternative fuel—coal, crude oil, atomic and hydroelectric power.[90] Steep rises in the cost of fossil fuels have increased geothermal steam prices far above the cost of production, with much benefit to the geothermal producers but little to the consumers of electric power. Arguably, the Public Utilities Commission could use its regulatory authority to control such "sweetheart" contracts in Hawaii,[91] but as owner of the resource the state could more adequately ensure that long-term benefits are passed on to consumers, should geothermal power be less costly than power derived from oil.

The weight given by the courts to these and other policy considerations may differ greatly according to the forum. The issue of geothermal resource ownership might be brought before the federal district court as a due process issue under the 14th Amendment,[92] or might appear before the Hawaii Supreme Court in an action to quiet title in geothermal resources, as in *Union Oil*.[93] Extrapolating from the recent line of decisions from these tribunals, the approaches of the two forums may differ greatly. The Hawaii Supreme Court has been more receptive to arguments, in close cases, that the state owns natural resources in controversy.[94] In two recent actions, the U.S. District Court for the

---

[87] Multiple uses of geothermal water are briefly discussed in R. KAMINS, REVISED ENVIRONMENTAL IMPACT STATEMENT FOR THE HAWAII GEOTHERMAL RESEARCH STATION 69 (March 1978) (Prepared for the Hawaii Dept. of Planning & Economic Development.)

[88] By present regulation, royalties on geothermal steam must be set between 10 and 20% of gross value and between 5 and 10% for by-products of the geothermal fluid. Additionally, the Board of Land and Natural Resources may impose a royalty based on "net profit, cash bonus or otherwise." HAWAII GEOTHERMAL REGULATIONS, Rule 3.13.

[89] *See supra* note 39.

[90] Finn, *Price of Steam at The Geysers*, U. N. SYMPOSIUM *supra* note 81, at 2295.

[91] Under its general powers and duties, HAW. REV. STAT. §269-6 (1976), the Commission has authority to approve clauses for automatic "fuel adjustments," linking the cost of kilowatt hours to the price of fuel oil paid by electric companies. *See* 76 Op. Att'y Gen 1 (Haw. 1976). By extension, the authority could be exercised to approve, and require, adjustments geared to the production costs plus reasonable profits of an alternative fuel, such as geothermal steam.

[92] As in Robinson v. Ariyoshi and Sotomura v. County of Hawaii, discussed *infra* note 95.

[93] 549 F.2d at 1276. *See* p. 75 *supra*.

[94] In the past few years the Court has explicitly relied on the public trust doctrine in deciding cases relating to property rights in shorelines and lava extensions. The doctrine holds that the sovereign, as trustee for the people over their rights in certain natural resources, such as rivers, coastal shores and tidelands, is closely constrained by its fiduciary duty in granting private rights to these resources Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. R. 471 (1970). The doctrine was established in Hawaii in 1899, when the Supreme Court used it to deny a corporation the right to develop portions of Honolulu Harbor. King v. Oahu Ry. & Land Co., 11 Haw. 717 (1899). Tidewater lands were also held to be vested in the sovereign "as the representative of the nation and for the public benefit" in Bishop v. Mahiko, 35 Haw. 608, 646 (1940).

In three recent cases, the court has referred to the doctrine in deciding competing claims of the state and private landowners to rights in natural resources. The first reference came in decisions which had the effect of maximizing the state's ownership of beachlands. Whereas in In re Ashford,

District of Hawaii, arrived at contrary findings of law, holding that such resources belong to private owners.[95]

Either court may be influenced by indications of legislative intent. The 1974 amendment to include geothermal resources under the mineral reservation was such an indication, but its effectiveness was limited by erroneous assumptions as to the prevalence of the reservation.[96] A bill was introduced before the 1979 session of the Hawaii Legislature which declared that the state owns all geothermal rights, regardless of the presence or absence of a mineral reservation in the grant or patent which conveyed a parcel into private ownership.[97] However, the bill failed to pass leaving to the judiciary responsibility for deciding the question of geothermal ownership when it arises.

---

50 Haw. 314, 440 P.2d 76 (1968), the court had relied on custom and usage to set the line of vegetation as the boundary of public ownership, in County of Hawaii v. Sotomura, 55 Haw. 176, 184, 517 P.2d 57, 63 (1973) *cert. denied* 419 U. S. 872 (1974) and in In re Sanborn, 57 Haw. 585, 593, 562 P.2d 771, 777 (1977), the court invoked the public trust doctrine to support its decision allowing state ownership up to the vegetation and debris mark. In *Sanborn* the court noted that its decision did not depend on the doctrine, but in State v. Zimring, 58 Haw. 106, 566 P.2d 725 (1977) the doctrine was central to its holding that the state owned those areas along the ocean which had been formed by recent lava flows.

In light of *Sotomura*, *Sanborn* and *Zimring*, which decided rights in the surface estate, the Hawaii court may also give heed to arguments applying the public trust doctrine to questions of ownership of subsurface rights. In *Zimring*, the court stated that if private landowners were adjudged to be the owners of new lava extensions, they would be granted a windfall and, it concluded that "equity and sound public policy" demanded that the windfall should instead "inure to the benefit of all the people of Hawaii." 58 Haw. 106 at 121, 566 P.2d 725 at 735 (1977). By analogy, it can be argued that the recent discovery of geothermal resources, the existence of which was unexpected when public lands were placed into private ownership, should also be treated as a windfall to inure to the population at large through state ownership.

Application of the public trust doctrine in Hawaii prior to *Sotomura*, *Sanborn* and *Zimring* is traced in Town & Yuen, *Public Access to Beaches in Hawaii: A Social Necessity*, 10 HAW. B. J. 5, 26 (1973).

[95] In Robinson v. Ariyoshi, 441 F. Supp. 559 (1977), the District Court ruled that private landowners had water rights earlier awarded to the state by the Hawaii Supreme Court, in McBryde Sugar Co. v. Robinson, 54 Haw. 174, 504 P.2d 1330 (1973) and 55 Haw. 260, 517 P.2d 26 (1973), *appeal dismissed*, 417 U. S. 962 (1974), *cert. denied*, 417 U. S. 976 (1974). Acknowledging that it is "axiomatic that the law of real property is left to the states to develop and administer", the District Court justified its intervention by what it held to be a violation of due process, resulting in a judicial "taking," in *McBryde*.

Sotomura v. County of Hawaii, 460 F. Supp. 473 (1978), held contrary to the Hawaii Supreme Court in the action cited in note 94 *supra*, that state ownership of beachland reaches only to the line of seaweed, and not to the higher line of vegetation. The court declared: "The [state] decision in Sotomura was ... intended to implement the court's conclusion that public policy favors extension of public use and ownership of the shoreline. A desire to promote public policy, however, does not constitute justification for a state taking private property without compensation." *Id.* at 13–14.

The *Robinson* decision has been appealed to the Ninth Circuit Court and the attorney representing Hawaii County was quoted as saying that *Sotomura* would also be appealed. Honolulu Advertiser, Oct. 17, 1978 at A-4, col. 1. Appellate decisions in the Ninth Circuit will certainly influence and may determine the legal regime for geothermal resources in Hawaii. On June 25, 1979, the U.S. District Court for the District of Hawaii dismissed an action by the landowners in *Zimring* (*supra* note 94), claiming title to lava accretions to beachland on the Island of Hawaii. Visiting U.S. District Judge Conti held that the federal court lacked jurisdiction to review the decision of the Hawaii Supreme Court on this property question. However, he distinguished *Sotomura* and *Robinson* (*supra* note 95) on the ground that in those cases the Hawaii Court, by raising questions of ownership *sua sponte* and deciding them without a hearing on the merits, had denied the landowners due process. *Zimring v. State*, No. 79-0054, Fed. Supp. (D.Haw. 1979).

[96] *See* p. 70 *supra*.

[97] H. B. 79-396. If the bill were enacted into law it could be attacked as an unconstitutional taking of private property without compensation and could be defended as being a proper exercise

V. CONCLUSION

Ownership of geothermal resources, recently discovered in Hawaii, is uncertain. A 1974 state statute[98] declares the resource to be "mineral" and therefore included within the mineral rights expressly reserved by the Hawaii government in land grants made before 1900 and again after 1955. The 1974 statute may establish the state as owner of hot water under lands granted since enactment of the statute but it leaves in doubt whether pre-1974 mineral reservations cover geothermal resources and whether the reservations are to be implied in grants which contain no express retention of mineral rights. A special problem is presented by lands originally patented subject to a mineral reservation, portions of which were subsequently granted to private owners without one.

The leading decision on the issue of geothermal rights, *United States v. Union Oil Co. of California*, 549 F.2d 1291 (9th Cir. 1977) holds that geothermal resources are included among the "minerals" retained by the federal government in a distribution of homestead lands. However, the case may be distinguished by the fact that the *Union Oil* court relied on a well-documented record of Congressional intent to construe "minerals," while in Hawaii there is no indication of legislative intent.

Property law offers but limited guidance in predicting how a court would decide the ownership of geothermal resources. The common law maxim of *cujus est solum* has been severely truncated with respect to the ownership of subsurface resources which can be analogized to geothermal reservoirs. The states with known geothermal resources, and those with oil and gas (the energy sources most similar to geothermal) are split in classifying the subsurface reservoirs as mineral or non-mineral.

Presented with close questions of definition and intent bearing on the ownership of geothermal resources and lacking clear doctrinal guidance or dispositive precedent, a Hawaii court may give weight to policy arguments, such as the likely effects on the production of geothermal energy and on the distribution of its benefits under private or public ownership. Recent decisions on the ownership of other natural resources contested by private parties and the State of Hawaii indicate that the Hawaii Supreme Court has been responsive to social benefit arguments while the U. S. District Court has found the assertion of state ownership on such grounds to be a taking in violation of the 14th Amendment.

Robert M. Kamins

---

of the state's authority to define property rights, under the decisions handed down by the Hawaii Supreme Court in *McBryde* and *Sotomura*, discussed in notes 94 and 95, *supra*.

[98] Act 241, 1974 Haw. Sess. Laws.