

INTERNATIONAL AIR LAW

ROMAN LAW AND THE MAXIM CUJUS EST SOLUM IN INTERNATIONAL AIR LAW

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I

The primary rule of international air law¹ was first formally stated in Article 1 of the Convention Relating to the Regulation of Aerial Navigation, signed at Paris 1919: "The High Contracting Parties recognise that every Power has complete and exclusive sovereignty over the air space above its territory . . ."

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¹*International Air Law* may be defined as that body of legal principles and rules included within the scope of both international law and air law. To apply this definition it is necessary to state the scope of both.

"*International Law* governs relations between independent states. The rules of law binding upon states, therefore, emanate from their own free will as expressed in conventions or by usages generally accepted as expressing principles of law and established in order to regulate the relations between these co-existing independent communities or with a view to the achievements of common aims." *The S.S. Lotus (France v. Turkey)*, Permanent Court of Int'l Justice, Sept. 7, 1927, Judgment 9, Ser. A, no. 10, p. 18; Manley O. Hudson, *World Court Report*, Washington, Caruegie Endowment for International Peace, 1934-43, Vol. 2 (1935) p. 35.

Air Law comprises the body of legal principles and rules, from time to time effective, which govern and regulate:

First:

- (a) Flight-space;
- (b) Its relationship to land and water areas on the surface of the earth;
- (c) The extent and character of the rights of individuals and States to use or control such space for flight or other purposes;

Second:

- (a) Flight;
- (b) The instrumentalities with which flight is effected, including their nationality, ownership, use or control;
- (c) The surface facilities used in connection with flight, such as airports and airways;

Third:

The relationships of every kind affecting or between individuals, communities or States arising from the existence or use of the area of flight (flight-space), or

The same rule was restated in Article I of the Convention on International Civil Aviation, signed at Chicago in 1944 and now in effect: "The contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory."

Both of these articles constitute international recognition of a prior existing rule. Both assert in substance that sovereign states held territorial rights in the airspace above their surface territories irrespective of and prior to either of the conventions. For the student of legal history this raises an immediate problem: How long in fact had states exercised sovereign rights in space?

The answer is that such rights had been claimed and exercised as far back into history as proof may exist of the creation and protection by state law of exclusive private property rights in such space.

II

Protection and regulation of exclusive public or individual rights in areas used by the citizens of a state are functions of that state in the exercise of its territorial sovereignty. Such rights can continue to exist only by direct or implied act or consent of the state. The rule was well stated in the following language by one of the pioneers in the development of air law: "The State cannot give the landowner a right of property or of use over the airspace above his land, if that airspace is not submitted to its sovereignty. Consequently, by giving such a right to the landowner, the State says that it considers itself sovereign over the airspace."²

the instrumentalities or facilities used in connexion therewith or to make flight effective.

In this definition (first stated in the author's "Air Law — A Field for International Thinking", *Transport and Communications Review*, Vol. IV, No. 4, Oct.-Dec., 1951, pp. 1-7, published by Transport and Communications Division, Dep't of Economic Affairs, United Nations), the term *flight* includes any movement through space of man-operated or man-controlled devices or instrumentalities. *Flight-space* means so much of universal space above and beyond the surface of the earth as is now used or may hereafter be used as the area in which flight takes place.

²Johanna F. Lycklama a Nijeholt, *Air Sovereignty*, The Hague, M. Nijhoff, 1910, p. 34.

See also: Ernst Zitelman, "Luftschiffahrtrecht," *Zeitschrift für internationales privat — und öffentliches Recht*, Vol. 19, 1909, pp. 476-477; Dionisio Anzilotti, "La condizione giuridica dello spazio atmosferico nei rapporti internazionali e le sue conseguenze in ordine alla navigazione aerea," Congresso giuridico internazionale per il regolamento della locomozione aerea, 31 maggio—1, 2 giugno 1910, *Atti e relazioni*, Verona, Società tipografica cooperativa, 1910, p. 163; statement of Sir Erle Richards (then Chichele Professor of International Law and Diplomacy at Oxford) in his lecture, *Sovereignty over the Air*, Oxford, Clarendon Press, 1912, where he said (p. 12): ". . . of course, the recognition of the rights of individual proprietors 'usque ad coelum' involves the assertion of State

Much of the confused thinking in dealing with air law problems in the past has stemmed from failure to realize that land and usable space above are legally indivisible and necessarily constitute a single social unit. Usable space is not an appurtenance to the land below but with such land forms the basic integrated sphere of human activity and has been for that reason treated by states as part of their territory. A state may not impose sanctions within the territory of another state.³ If a state is found to be protecting exclusive rights in a fixed area through its governmental processes, the area concerned must be within its own territory, for a state cannot legally impose its will in any area to the exclusion of all other states if such area is outside its accepted and recognized territory.⁴ The only valid exceptions to this rule are found in acts committed in war time.

sovereignty to the same extent."]; International Law Association, *Report of the Committee upon Aviation* to the 28th Conference, Madrid, 1913, p. 532, which took a similar position; Albert G. de La Pradelle, "De l'origine de la maxime *cujus solum, ejus coelum*," *Revue générale de droit aérien*, Vol. 1, 1932, p. 294; Antonio Ambrosini, *Instituzioni di diritto aeronautico*, 2d ed., Rome, Ufficio editoriale aeronautico, 1940, p. 67.

As to territorial sovereignty in Roman times, Fiore, discussing the "Right of Imperium" noted that "Roman jurists considered the right of imperium as so exclusively territorial that they defined territory as the whole of the lands over which command and coercive power could be exercised," citing Digest L.16.239.8 as follows: "*Territorium* est universitas agrorum intra fines cuiusque civitatis: quod ad eo dictum quidam aiunt, quod magistratus eius loci intra eos fines terrendi, id est summovendi ius habent." [Pasquale Fiore, *International Law Codified and its Legal Sanction* . . . , translated from 5th Italian edition by Edwin M. Borchard, New York, Baker Voorhis, 1918, Bk I, Title X, Sec. 247 (p. 174 of translation)]. Modern research as to treaties indicates that national rights (external sovereignty) as against all the world had been developed in Roman times on a territorial basis to a much greater extent than usually realized. [Coleman Phillipson, *The International Law and Custom of Ancient Greece and Rome*. London, Macmillan, 1911, Vol. 1, pp. 295-298.]

³"Now the first and foremost restriction imposed by international law upon a State is that — failing the existence of a permissive rule to the contrary — it may not exercise its power in any form in the territory of another State." *The S. S. Lotus*, *supra* note 1. (It is not believed that subsequent discussion in this opinion, applicable to the particular facts before the Court, in any way derogates from the basic rule as stated above.)

⁴It is no exception to this rule that certain kinds of national jurisdiction have been recognized on the high seas, particularly to suppress piracy and to provide for the more complete enforcement of certain national laws, such as smuggling and customs regulations. ". . . all governments, for the purpose of self-protection in time of war or for the prevention of frauds on its revenue, exercise an authority beyond [territorial waters]." *Manchester v. Massachusetts*, 139 U.S. 240, 258 (1891).

See also: *The Apollon (Edon, Claimant)*, 9 Wheaton (22 U.S.) 362, p. 371, (1824); Philip G. Jessup, *The Law of Territorial Waters and Maritime Jurisdiction*, New York, G. A. Jennings, 1927, Chap. 5, pp. 241-276; Charles Cheney Hyde, *International Law*, 2d rev. ed., Boston, Little Brown, 1945, Vol. 1, Secs. 144-144a, pp. 460-462, Secs. 235-235a, pp. 777-785; Charles Evans Hughes, "Recent Questions and Negotiations," *American Journal of International Law*, Vol. 18, 1924, pp. 229-245 (address before the Council on Foreign Relations, New York, January 23, 1924.).

For the purpose of this study it will be sufficient if the existence of public and private rights in space above lands on the surface is traced back to Roman times. A careful examination of the rules of property found in Roman law and of those later rules which are evidenced by the Latin, though non-Roman, maxim *Cujus est solum, ejus est usque ad coelum* will demonstrate that at least since Roman times states have continuously recognized, regulated and protected rights in space held by the owner or occupant of lands on the surface below. These rules of property are rules of private law, but for the reason indicated above the existence of such private rights constitutes the major and, in fact, the conclusive proof that states have always claimed and exercised territorial sovereignty in space above their surface territory to the extent needed to make valid the public and private rights in space mentioned above.

III

As early as Roman times the law recognized exclusive rights, both public and private, in space in connection with the use and enjoyment of the land below. The existence of these rights with the remedies provided for their protection or regulation demonstrates that Roman law did not hesitate to provide the same degree of state control in areas above the surface as it did on the surface itself wherever and whenever deemed advisable or necessary.

Roman law was essentially practical. It dealt with conditions under which man lived, the social problems that arose from day to day, the extent to which the processes of law were required and were applicable to settle disputed points. It recognized and dealt primarily with property questions. It was particularly concerned with interests in land and its use. The writings of the great Roman jurists show the utter fallacy of attempting to deal with public or private rights in land as if such land were merely a flat surface entirely dissociated from space above.

Roman law recognized that space is the reservoir for the air which man breathes and is the access to the heavens from which comes the light and heat of the sun; that man uses parts of space when he walks on a public road or private path, or when he builds a house or grows crops or trees. Space above the lands of the Roman state was recognized as an integral part of the habitable earth.

Modern writers are generally in accord that Roman law thus recognized and protected rights in space. Unanimity of opinion does not, however, exist as to whether such rights were rights of complete ownership or merely rights to so much of the airspace as needed for the enjoyment of the surface property below.

Roby, writing of the classical Roman law in the time of Cicero and the Antonines (three to six centuries prior to the Justinian Institutes and Digest), said of ownership ("*dominium*") that it was the full right of doing

whatever one liked with a thing and that in substance the owner of land had the full and free use of all above and below his land.⁵ Roby also held that ownership included control over lands or buildings and freedom from interference with the air above and the ground below.⁶

Buckland, writing of the Roman law of Justinian as well as of the classical period, was of the opinion that, had the Romans been forced to face modern problems, they would probably have held that there was no upper limit of ownership, and that rules for height of buildings and for overhanging trees were merely limitations of ownership in the general interest.⁷

Goudy felt that had the Roman jurists been compelled to deal with the flight of aircraft, rights of property in the "*coelum*" (airspace) would have been sufficient to prevent air transit over a man's ground and that interdicts would have been granted to prevent such transit if damages were caused or threatened.⁸

After an independent re-examination of the sources in the *Corpus Juris Civilis* to determine the rights in Roman law of the landowner in airspace above his property, Lardone said: "Has the landowner any rights in the air column above his property according to Roman law? The general conclusion reached is as follows: 1. According to the wording of the Sources, the landowner is given expressly by Roman law the control of the air column above his property at low altitudes, for instance, the height of buildings, of trees, etc. 2. According to the *spirit* of the Sources, such private control can be extended to *any altitude*."⁹

De Montmorency held that under Roman law the state enjoyed a right of eminent domain in space above Roman soil and that control of the airspace was retained by the Roman state insofar as the airspace was not essential to the enjoyment of the land beneath.¹⁰ He hence disagreed with Roby as to the extent of the right of the individual in the airspace, but insisted even more strongly that the state claimed and controlled such airspace.

Von Jhering, in Germany, upon a re-examination of the original sources, concluded that the owner of the soil was also owner of the airspace above, but only to the extent required to satisfy his practical needs, and that Roman

⁵Henry John Roby, *Roman Private Law in the Times of Cicero and of the Antonines*, Cambridge, Cambridge Univ. Press, 1902, Vol. 1, p. 414.

⁶Roby, *op. cit.* Vol. 1, p. 498.

⁷William Warwick Buckland, *The Main Institutions of Roman Private Law*, Cambridge Univ. Press, 1931, pp. 103-104.

⁸Henry Goudy, "Two Ancient Brocards," in: *Essays in Legal History read before the International Congress of Historical Studies held in London in 1913*, edited by Paul Vinogradoff. London/New York, Oxford Univ. Press, 1913, p. 231.

⁹Francesco Lardone, "Airspace Rights in Roman Law," *Air Law Review*, Vol. 2, 1931, p. 455. Lardone was at that time Associate Professor of Roman Law at the Catholic University in Washington, D. C.

¹⁰James E. G. de Montmorency, "The Control of the Air Spaces," in: *Grotius Society, Problems of the War*, London, Sweet & Maxwell, 1917, Vol. 3, p. 67.

jurists would not have accepted such an "abuse of logic" as property in space without limit.¹¹

Both Guibé¹² and Sauze,¹³ in France, denied that Roman law created rights of ownership in the airspace but admitted that the subjacent owner had a right exercisable at any time to build up to an indefinite height or otherwise enjoy the use of his land and have such use protected by law.

Pampaloni and Bonfante, in Italy, each made an independent re-examination of the original sources. Pampaloni was of the opinion that in Roman law the owner of the soil had the exclusive power over contiguous airspace, which at times appeared equivalent to ownership.¹⁴ Bonfante, in one of the ablest presentations of the entire question thus far available, also concluded that Roman law gave limited rights of ownership in the airspace above.¹⁵

All of these authorities thus emphasized the territorial status of Roman airspace and the continuing sovereign control by the Roman state above the surface of the earth. The landowner was held to be protected by the state at least to the extent of the use of so much of the airspace as might from time to time be needed in connection with the enjoyment of the surface property below.

IV

An examination of the pertinent original texts of the Institutes, the Digest, and the Code of Justinian¹⁶ may be useful as a background for the comments

¹¹Rudolf von Jhering, "Zur Lehre von den Beschränkungen des Grundeigentümers in Interesse der Nachbarn," *Jhering Jahrbücher für die Dogmatik des Bürgerlichen Rechts*, Vol. 6, 1863. Translated by O. Meulenaere under title "Des restrictions imposées aux propriétaires fonciers dans l'intérêt des voisins," in Rudolf von Jhering, *Oeuvres choisies*, Paris, A. Marescq, 1893, Vol. 2, pp. 101-144.

¹²Henri Guibé, *Essai sur la navigation aérienne en droit interne et en droit international*, Caen, E. Lanier, 1912, pp. 35-42.

¹³Eugène Sauze, *Les Questions de responsabilité en matière d'aviation*, Paris, M. Giard & E. Brière, 1916, pp. 23-55. For general comment on this subject, see also: Clement L. Bouvé, "Private Ownership of Airspace," *Air Law Review*, Vol. I, 1930, pp. 232-257, 376-400.

¹⁴Muzio Pampaloni, "Sulla condizione giuridica dello spazio aereo e del sottosuolo nel diritto romano e odierno," *Archivio giuridico*, Vol. 48, 1892, p. 59.

¹⁵Pietro Bonfante, *Corso di diritto romano*, Rome, Attilio Sampaolasi, 1926-28, Vol. 2, Pts. 1 & 2, Chap. 12, pp. 218-229.

No serious present day analysis of the difference between sovereign state rights and private property rights in space is complete without the most careful consideration of Bonfante's arguments. He concludes in substance that sovereign state rights may extend upwards without limit so far as human dominion may be exercised, but that private property rights must have an economic basis and that the upper limit of private space ownership is at the point where such ownership ceases to have any economic interest or purpose for the landowner.

¹⁶Justinian ruled as emperor of the eastern Roman Empire with its capital at Constantinople, A.D. 527-565. In A.D. 528 he appointed ten commissioners to draft a new

of the learned writers quoted in the previous section. Roman law dealt with interests in the airspace over public lands, over other non-commercial lands, such as religious property and tombs, and over private lands.

Public lands included highways which were the property of the state though open to general use.¹⁷ The original Roman texts admit of no doubt that the state retained control of the airspace over such public places to an indefinite height and prohibited all interference. The following quotation from Paul (Digest VIII.2.1) is conclusive:

If public ground or a public road comes in the way, this does not hinder the servitude of a *via*, or an *actus* or a right to raise the height of a building, but it hinders a right to insert a beam, or to have an overhanging roof or other projecting structure, also one to the discharge of a flow or drip of rainwater, because the sky over the ground referred to ought to be unobscured.¹⁸

The word "sky" as translated by Monro is "*coelum*" in the original Latin of the Digest and the word "unobscured" is "*liberum*." The latter part of this quotation is better understood when translated "because the airspace over the land referred to ought to be free." Of this text, Goudy said: ". . . which means,

Code covering the "constitutions" or imperial enactments. This was completed the following year. In 530 a committee of sixteen compilers headed by Tribonian commenced the compilation of the great mass of Roman law, then contained in some two thousand books. The compilation was completed in 533 and thereafter known as the *Digest*. It includes extracts based on the writings of thirty-nine jurists — those of Ulpian and Paul constituting about one-half of the work. Justinian also ordered the compilation of a more elementary work, particularly for the use of law students, now known as the *Institutes*. Both the *Digest* and the *Institutes* became law December 30, A.D. 533. In 534 a new *Code* was prepared and the *Code* of 529 withdrawn. The subsequent enactments of Justinian, between 535 and 564, were afterwards collected and are known as the *Novellae*. The *Institutes*, the *Digest*, the *Code* and the *Novellae* together constitutes the *Corpus Juris Civilis*. In this paper all references to the *Corpus Juris Civilis*, unless otherwise noted, refer to the Krueger-Mommsen edition, Berlin, Weidmannos, 1915-1928.

¹⁷William Warwick Buckland, *A Text-book of Roman Law from Augustus to Justinian*, Cambridge, Cambridge Univ. Press, 1921, p. 184.

¹⁸Charles Henry Monro, tr., *The Digest of Justinian*, Cambridge, Cambridge Univ. Press, 1904-09, Vol. 2, p. 68. A *via* was a general right of way, while an *actus* was usually a right of way for vehicles. See: Thomas Collett Sandars, ed., *The Institutes of Justinian*, London/New York/Bombay, Longmans Green, 1903, p. 118, translating Institutes II.3.pr.

The Latin text of Digest VIII.2.1 reads: "PAULUS libro vicensimo primo ad edictum. Si intercedat solum publicum vel via publica, neque itineris actusve neque altius tollendi servitutes impedit: sed immittendi protegendi prohibendi, item fluminum et stillicidiorum servitutum impedit, quia caelum, quod supra id solum intercedit, liberum esse debet."

For further discussion of this passage, see: Bonfante, *op. cit.* pp. 220, 221; Bouvé, *op. cit.* pp. 244, 246; Goudy, *op. cit.* pp. 230, 231; de La Pradelle, *op. cit.* pp. 295, 297, 300; Lardone, *op. cit.* p. 458; Arnold D. McNair, *The Law of the Air*, London, Butterworth, 1932, p. 14; de Montmorency, *op. cit.* p. 65; Richards, *op. cit.* p. 11; Edward C. Sweeney, "Adjusting the Conflicting Interests of Landowner and Aviator in Anglo-American Law," *Journal of Air Law and Commerce*, Vol. 3, 1932, pp. 365, 369. See also: Henri Guibé, *op. cit.* p. 36.

I take it, that the airspace above the road should be free to all, like the road itself."¹⁹ This is another way of saying that the airspace has the same legal status as the surface below.²⁰ The word "*coelum*" often appears as "*caelum*".

Lands which had been given a religious character, also tombs, could not be dealt with commercially as private property.²¹ The airspace over such lands was (as in the case of public property) considered as having the legal status of the surface, and could be protected by legal process against private encroachment. For this purpose the interdict *Quod vi aut clam* was used in pre-Justinian legal procedure. This interdict was a special order or decree of the praetor obtainable to stop work in progress, to undo what had been done, or to obtain compensation for injury when public lands, religious lands, tombs, or private lands of the plaintiff were affected.²² This interdict was in use at least as early as the time of Cicero. Its initial beginning words "*quod vi aut clam . . .*" have been translated as "Anything that has been done by force or stealth in the matter now in question you are to restore, if it is not more than a year since there was the power of suing."²³ "Force" was the doing of a forbidden thing, and "stealth" was implied in keeping the action complained of from the knowledge of the party concerned.

Book XLIII of the Digest is devoted to the various interdicts, and Title 24 to the interdict *Quod vi aut clam*. As in many other parts of the Digest, statements of substantive law are included with statements of applicable procedure in case of a breach of recognized rights. So, in this case, Venuleius states both the rights to be protected and the remedy (Digest XLIII.24.22.4) :

If a person shall have built a projection, or allowed rain-water to fall from a roof, into a sepulcher, even though he may not have touched the grave monument itself, he can rightly be summoned for action against a sepulcher by violence or stealth, since not only is the actual place of interment part of the sepulcher, but also all the sky above it: and therefore he can be summoned on the charge of violation of a sepulcher.²⁴

Again the Latin word "*coelum*" is used and is generally translated as "sky." If the word "airspace" is used in the translation instead of the word "sky,"

¹⁹Goudy, *op. cit.* pp. 230-231.

²⁰Professor Dionisio Anzilotti, later a member and president of the World Court, prepared a paper for the Verona 1910 conference entitled "The Legal Status of Atmospheric Space in International Relations and its Consequences in Regard to Air Navigation" ["La condizione giuridica dello spazio atmosferico . . .," *op. cit.*]. In this paper [p. 162] discussing *Digest* VIII.3.1 and *Digest* XLIII.24.22.4, he noted the existence of a "simple and rational" principle affirmed by the Roman texts that atmospheric space follows the legal status of the land.

²¹Buckland, *Text-book of Roman Law, op. cit.* p. 185.

²²For general description of this interdict and its application in classical Roman law, see: Roby, *op. cit.* Vol. 1, pp. 521-525. See also: Sandars, *op. cit.* pp. 488-489.

²³Roby, *op. cit.* Vol. 1, p. 521.

²⁴The Latin text reads: "*Si quis projectum aut stillicidium in sepulchrum immiserit, etiamsi ipsum monumentum non tangeret, recte cum eo agi, quod in sepulchro vi aut*

the passage has even more accurate meaning. Of this use of the interdict,²⁵ Roby says: "Any work *on or connected with land* comes within the interdict...; turning the rainfall on to a tomb or making a projection over it, even though it be not touched, for *all above the tomb up to the sky belongs to it*"²⁵ (Italics supplied). Goudy notes that the interdict is available in this case "just as much as if the *solum* itself had been encroached upon."²⁶ It is evident from this citation that airspace to an indefinite height above the tomb was considered as an integral part of the lands covered by the tomb and was so protected by Roman law.

V

Usable space over private lands was likewise protected from encroachment. The only matter not entirely clear is the height above the surface to which the landowner had the right to control the airspace in connection with his use of the surface. The power of the state to grant, limit, or protect private interests as rights in this airspace was not questioned and was exercised without limit as and when the state so determined.

Ulpian, writing on the special prohibitory interdict available with reference to the cutting of trees,²⁷ quotes the form of the interdict used when a tree from one property hangs over a *building* on a neighbor's property (Digest XLIII.27.1.pr.) :

The Praetor says: If a tree hangs from your buildings over his, and it is your fault for not cutting it, then I forbid the use of force to prevent him from cutting that tree and keeping it for himself.²⁸

Evidently a decree similar to a modern injunction would be issued to protect the property rights of the neighbor in space over his buildings at whatever height the trespassing tree might be. For such purpose the neighbor could enter on your property and cut down your tree and haul it away protected by the interdict.

clam factum sit, quia sepulchri sit non solum is locus, qui recipiat humationem, sed omne etiam supra id caelum; eoque nomine etiam sepulchri violati agi posse."

For other translations, see: Lardone, *op. cit.* p. 459; Sweeney, *op. cit.* p. 366. For further discussion of this passage see: Anzilotti, *op. cit.* p. 162; Bonfante, *op. cit.* p. 220, 221; Bouvé, *op. cit.* pp. 234, 244; Goudy, *op. cit.* p. 230; de La Pradelle, *op. cit.* pp. 295, 297; Lardone, *op. cit.* pp. 459, 461; McNair, *op. cit.* p. 14; de Montmorency, *op. cit.* p. 65; Sweeney, *op. cit.* pp. 366, 369.

²⁵Roby, *op. cit.* Vol. 1, pp. 521-522.

²⁶Goudy, *op. cit.* p. 230.

²⁷Title 27 of Book XLIII of the Digest is entitled "*De arboribus caedendis.*" For general discussion of this interdict, see: Roby, *op. cit.* Vol. 1, p. 508.

²⁸The Latin text reads: "ULPIANUS libro septuagesimo primo ad edictum. Ait praetor: 'Quae arbor ex aedibus tuis in aedes illius impendet, si per te stat, quo minus

Ulpian continues, quoting the second form of the interdict applicable to *cultivated land* (Digest XLIII.27.1.7):

Further the praetor says: If it is your fault for not trimming to within fifteen feet of the ground a tree which hangs from your field onto his, then I forbid the use of force to prevent him from trimming it and keeping the wood for himself.²⁹

The difference between the two uses of the interdict is thus explained in the text (Digest XLIII.27.1.8 & 9):

The praetor says also, and the Law of the Twelve Tables is to the same effect. that tree branches up to fifteen feet should be trimmed; this was done to prevent harm to the neighboring estate by the shade of a tree. This is the difference between the two heads of the interdict; if a tree hangs over buildings it should be cut down; but if it hangs over a field, it should be only trimmed up to fifteen feet of the ground.³⁰

The latter text is particularly interesting as illustrating how ancient was the appreciation by Roman law of the need to protect the landowner's interest in the space over his fields, for the Twelve Tables came into force perhaps as early as 450 B.C.

These passages as to the cutting of trees have been variously construed.³¹ But no matter what the proper construction may be, it is certain that the landowner was given control of airspace over his field up to fifteen feet along the boundaries of his field, and was not prohibited from otherwise using the space over his field. When a projection over a building was involved, the rights of the owners of the building in the space above were not limited. In whatever manner these passages be construed they are clear evidence of a continuing legislative control of the airspace by the state and an acknowledged power of the state to adjust airspace rights between various landowners.

An interesting and much discussed text from Ulpian (Digest VIII.5.8.5) indicates that the lessee of a cheese factory was prohibited from permitting smoke to go up and into higher adjoining houses. This was apparently con-

eam adimas, tunc, quo minus illi eam arborem adimere sibi que habere liceat, vim fieri veto."

For discussion of various parts of Digest XLIII.27.1, see: Bouvé, *op. cit.* p. 246; de La Pradelle, *op. cit.* p. 296; Lardone, *op. cit.* pp. 459, 465; McNair, *op. cit.* p. 13; de Montmorency, *op. cit.* p. 63; Sweeney, *op. cit.* p. 369.

²⁹The Latin text reads: "Deinde ait praetor: 'Quae arbor ex agro tuo in agrum illius impendet, si per te stat, quo minus pedes quindecim a terra eam altius coerceas, tunc, quo minus illi ita coercere lignaque sibi habere liceat, vim fieri veto.'" See also note 28 *supra*.

³⁰The Latin text reads: "Quod ait praetor, et lex duodecim tabularum efficere voluit, ut quindecim pedes altius rami arboris circumcidantur: et hoc ideo effectum est, ne umbra arboris vicino praedio noceret. Differentia duorum capitum interdicti haec est: si quidem arbor aedibus impendat, succidi eam praecipitur, si vero agro impendat, tantum usque ad quindecim pedes a terra coerceri." See also note 28 *supra*.

³¹See note 28 *supra*.

sidered a trespass on another's property by interfering with the airspace above it.³²

A little discussed text, but one of great importance, is also from Ulpian (Digest IX.2.29.1). It holds that in case of a roof from one house extending over another house, the owner of the latter should not break off the offending projection, but should bring an action based on the fact that the owner of the projection had no right to have such a projection. This is another case of substantive law stated in connection with a discussion of remedies or procedure.³³

Other passages of the *Corpus Juris Civilis* throw further light on the interests of individual landowners in space. Most of these additional texts have to do with servitudes held by the owner of one "*praedium*"³⁴ or "estate" on another estate. The servitudes affecting land were of two kinds, "urban" where buildings were involved (even though in the country), and "rustic" as to cultivated lands.

In Book VIII of the Digest, on Servitudes, Paul is quoted as follows (VIII. 2.24):

Whoever has a building which is, with good right, superposed on another may lawfully build on the top of his own structure as high as he pleases, so long as this does not (tend to) impose on the buildings underneath a more burdensome servitude than they ought to have to bear.³⁵

This text is particularly interesting in that the original Latin of the Digest uses the words "*in infinito*" (translated by Monro "as high as he pleases"). The same passage was translated by Lardone as "up to the skies." Obviously

³²The Latin text reads: "*Aristo Corellio Vitali respondit non putare se ex taberna casaria fumum in superiora aedificia iure immitti posse, nisi ei rei servitutem talem admittit, idem qui ait et ex superiore in inferiora non aquam, non quid aliud immitti licet: in suo enim alii hactenus facere licet, qua tenuis nihil in alienum immitat, fumi autem sicut aquae esse immissionem: posse igitur superiorem cum inferiore agere ius illi non esse id ita facere.*"

For further discussion of this passage, see: de La Pradelle, *op. cit.* p. 295; Lardone, *op. cit.* p. 458.

³³The Latin text reads: "*Si protectum meum, quod supra domum tuam nullo iure habebam, reccidisses, posse me tecum damni iniuria agere Proculus scribit: debuisti enim mecum ius mihi non esse protectum habere agere; nec esse aequum damnum me pati reccisis a te meis tignis.*"

See particularly: Bonfante, *op. cit.* pp. 221, 222, 223.

³⁴For discussion as to translation of the word "*praedium*" and generally as to servitudes, see: Buckland, *Text-Book of Roman Law, op. cit.* pp. 258-264; Sandars, *op. cit.* pp. 118-119.

³⁵Monro, *op. cit.* Vol. 2, p. 75. See also: Lardone, *op. cit.* p. 458, for a different translation. The Latin text reads: "*PAULUS libro quinto decimo ad Sabinum. Cuius aedificium iure superius est, ei ius est in infinito supra suum aedificium imponere, dum inferiora aedificia non graviore servitute oneret quam pati debent.*"

For further discussion of this passage, see: de La Pradelle, *op. cit.* p. 295; Lardone, *op. cit.* p. 458; McNair, *op. cit.* p. 14.

it is the clear meaning of the original Latin text that there is no legal limit to which the building can be built. This in turn must mean that the state was prepared to enforce its law and exercise its regulatory and territorial powers up to whatever height the owner of the building might be able to build.

The right of the landowner to build up as far as he wishes is even more succinctly stated in a text from the Justinian Code (III.34.8):

One is in no wise prevented from constructing his building higher provided his building acknowledges no servitude.³⁶

This is a most important text. As will be noted, certain quotations from the Digest to be cited hereafter might leave the impression, when considered alone, that building once constructed could never be raised except by permission of adjoining property owners. That this provision of the Code was in fact based on prior recognized Roman law, and was not merely a new legislative act by Justinian, is evidenced by the following citation from Ulpian (Digest VIII.2.9):

Where a man, by raising the height of his own house, cuts off the flow of light to that of his neighbour, but is not subject to a servitude in respect of the latter, there is no right of action against him.³⁷

Among the urban servitudes stated in both the Institutes (II.3.1) and the Digest (VIII.2.3) is that by which one building may be encumbered by a servitude preventing its being raised and thereby affect the light of a neighboring building. Some of the passages on this subject are ambiguous and have led to various conclusions by learned writers. In some cases it has been thought that general building restrictions may have been enforced by Roman law which denied the right of the landowner to raise a building above the height first used, even in the absence of a servitude.³⁸

³⁶The Latin text reads: "*Altius quidem aedificia tollere, si domus servitutum non debeat, dominus eius minime prohibetur, in pariete vero tuo si fenestram Iulianus vi vel clam fecisse convincatur, sumptibus suis opus tollere et integrum parietem restituere compellitur.*"

For further discussion of this passage, see: de La Pradelle, *op. cit.* p. 301; Lardone, *op. cit.* p. 458; McNair, *op. cit.* p. 16; Sweeney, *op. cit.* p. 366.

³⁷Monro, *op. cit.* Vol. 2, pp. 69-70. The Latin text reads: "*ULPIANUS libro quinquagesimo tertio ad edictum. Cum eo, qui tollendo obscurat vicini aedes, quibus non serviat, nulla competit actio.*"

For further discussion of this passage, see Sweeney, *op. cit.* p. 366.

³⁸These are the passages that led de Montmorency [*op. cit.* p. 64] to the view that anything in the nature of airspace other than the airspace contained in the building originally erected remained the property of the state in Roman law. Thereafter, according to him, the height of the building could be increased only with the consent of the state or the neighbors.

Sandars notes [*op. cit.* p. 121] certain provisions in Tacitus and Suetonius as to specific building restrictions and concludes that according to the provisions of the Digest neighbors could waive the restrictions.

As to building on vacant ground, the Digest was clear. For example, Papirius Justus is quoted to the following effect (Digest VIII.2.14) :

The Emperors Antoninus Augustus and Severus Augustus declared by rescript, with reference to vacant ground over which no one has a servitude, that the owner, or anyone else with his consent, is free to build on it, if he leaves clear the statutable space between the spot and the neighbouring block.³⁹

Some difficulty has, however, been caused by certain texts regarding rebuilding, such as that in Digest XLIII.24.21.2 which directs that in case of new work (rebuilding) "measurement should be made both of the ground and of the airspace (*coelum*)."⁴⁰ Obviously this is a statement of a rule indicating that new work should not occupy airspace previously unoccupied. To the same effect is the following statement from Ulpian (Digest VIII.2.11) :

Where a man wishes to block out his neighbours' lights or to construct anything at all which interferes with their convenience, he must bear in mind that he is bound to observe the form and position of the original buildings. 1. If you have got no agreement with your neighbour as to how high a building which you have taken in hand to construct may be raised, you can have an arbiter appointed.⁴¹

It is the belief of the present author that the two texts last quoted were from passages that must have originally referred to certain building restrictions, not matters of general law. This is conjecture, based on the contradiction between these passages and others cited. If any general contradiction did exist, it was legislatively removed by the Code. The Justinian Code, as we now have it, was completed after the Digest and Institutes. It contained legislative matter of certain of the earlier emperors as well as those of Justinian. The clear and unequivocal provisions of the Code as cited above (III.34.8—for Latin text, see note 36 *supra*), permitting unlimited building in the absence of a

Roby admits [*op. cit.* Vol. 1, p. 500, note 1] that it is "not easy to explain why the exercise of any owner's ordinary rights [to built up] should be regarded as special privilege, and as the result of a neighbour's being under a servitude."

³⁹Monro, *op. cit.* Vol. 2, p. 71. The Latin text reads: "PAPIRIUS JUSTUS libro primo de constitutionibus. Imperatores Antoninus et Verus Augusti rescripserunt in area, quae nulli servituten debet, posse dominum vel alium voluntate eius aedificare intermisso legitimo spatio a vicina insula."

For further discussion of this passage, see: Lardone, *op. cit.* p. 461; Sweeney, *op. cit.* p. 369.

⁴⁰The Latin text reads: "In opere novo tam soli quae caeli mensura facienda est."

For further discussion of this passage, see: Bonfante, *op. cit.* p. 220; Goudy, *op. cit.* p. 231; de La Pradelle, *op. cit.* p. 301; Lardone, *op. cit.* p. 461; McNair, *op. cit.* pp. 14, 15; Sweeney, *op. cit.* p. 369.

⁴¹Monro, *op. cit.* Vol. 2, p. 70. The Latin text reads: "ULPIANUS libro primo de officio consulis. Qui luminibus vicinorum officere aliudve quid facere contra commodum eorum vellet, scient se formam ac statum antiquorum aedificiorum custodire debere. 1. Si inter te et vicinum tuum non convenit, ad quam altitudinem extelli aedificia, quae facere instituisti, oporteat, arbitrum accipere poteris."

servitude is a re-enactment of one of the constitutions of the Emperor Diocletian in the year A.D. 293.⁴² This date is later than the writings of most of the jurists included in the Digest. The particular provision may have been re-enacted by Justinian to obviate any confusion.

In no event, however, does this ambiguity change the legal position so far as the authority and power of the state is concerned. Under one interpretation, the state is presumed to have fixed the height of buildings when they were first erected and to have retained control of any increase which the owner thereafter wished to make. Under the other interpretation the private landowner was given by the state either full ownership or control of usable space above his building, rights of occupancy and protection from interference — that is, rights protected by the state, which could be limited only by the landowner submitting his building to a servitude for the benefit of a building owned by someone else.

VI

The conclusion reached in the last section as to the existence under Roman law of public and individual rights in space over Roman lands are neither contradicted nor affected by other Roman texts as to the "air" being "common to all." The distinction between "air" and "airspace" was as clear in Roman law as it is today. The legal status of the air (or atmosphere) which men breathed was not the same as that of the space through which the air circulated.

The compilers of the Justinian Institutes divided "things" into two general classes — those capable of private ownership and those not capable of private ownership. Of the latter it was said that some things by the "law of nature" belonged to all men, some to the public, some to no one, and some to corporate bodies or associations (Institutes II.1.pr.).⁴³ Then follows the famous passage in the Institutes which has been quoted in every modern discussion of the "freedom of the seas" or "freedom of the air" (Institutes II.1.1) :

By the law of nature these things are common to mankind — the air, running water, the sea, and consequently the shores of the sea. No one, therefore, is forbidden to approach the seashore, provided that he respects habitations, monuments, and buildings, which are not, like the sea, subject only to the law of nations.⁴⁴

⁴²Lardone, *op. cit.* p. 458, note 6.

⁴³See: Buckland, *Text-book of Roman Law, op. cit.* pp. 182-188; Sandars, *op. cit.* pp. 88-90; Rudolf Sohm, *The Institutes: A Textbook of the History and System of Roman Private Law*, translated by James Crawford Dedlie, 3d ed., Oxford, Clarendon Press, London/New York, H. Frowde, 1907, pp. 301-305.

⁴⁴Sandars, *op. cit.* p. 9. The Latin text [quoted from Sandars, p. 90] reads: "*Et quidem naturali jure communia sunt omnium haec; aer et aqua profluens et mare et per hoc litora maris. Nemo igitur ad litus maris accedere prohibetur, dum tamen villis et monumentis et aedificiis absteat, quia non sunt juris gentium, sicut et mare.*"

For further discussion of this passage, see: Bouvé, *op. cit.* pp. 232, 244; de La Pradelle, *op. cit.* p. 295; Lardone, *op. cit.* p. 461; McNair, *op. cit.* p. 13; de Montmorency, *op. cit.* pp. 61, 65; Sweeney, *op. cit.* p. 368.

The general principle stated in this passage was adopted from earlier texts of the Roman jurists, particularly the following from Marcian (Digest I.8.2) :

Some things are by natural law common to all, some belong to a community (universitas), some to nobody, most things belong to individuals; and they are acquired by various titles in the respective cases. 1. To begin with, by natural law, the following are common to all: air, flowing water, the sea, and consequently the seashore.⁴⁵

Celsus, writing of the circumstances under which pilings might be driven into the shores and the sea, remarked that "the use of the sea is common to all men, like that of the air" (Digest XLIII.8.3)⁴⁶ Ulpian, discussing the question as to whether a man could prevent fishing in the sea in front of his house, had said that "the sea is common to all as well as the shores, just as the air" (Digest XLVII.10.13.7).⁴⁷

In each of these passages the Latin word used is "aer." This word was adopted into the Latin without change in spelling or meaning from the Greek. It is continuously used to refer to the air we breathe — to distinguish the gaseous lower atmosphere from the pure "aether" above.⁴⁸ Classical Latin is replete with instances of the use of the word "aer" as one of the elements—the air needed to sustain life. Cicero for example said: "The earth is entirely surrounded by this life-giving and breathable element, of which the name is the air (aer), a Greek word, but accepted by us through use, common in Latin."⁴⁹

The Roman jurists of the classical period, as well as the compilers of the Justinian Digest and Institutes, usually distinguished between the words

⁴⁵Monro, *op. cit.* Vol. 1, pp. 39, 40. The Latin text reads: "MARCIANUS libro tertio institutionum. Quaedam naturali jure communia sunt omnium, quaedam universitatis, quaedam nullius, pleraque singulorum quae variis ex causis quique adquiruntur. 1. Et quidem naturali iure omnium communia sunt illa; aer, aqua profluens, et mare, et per hoc litora maris."

For further discussion of this passage, see: Bouvé, *op. cit.* p. 232; de La Pradelle, *op. cit.* p. 295; Lardone, *op. cit.* p. 461; Sweeney, *op. cit.* p. 368; G. D. Valentine, "The Air — A Realm of Law," *Juridical Review*, Vol. 22, 1910, p. 17.

⁴⁶The Latin text reads: "CELSUS libro trigensimo nono digestorum. Litora, in quae populus Romanus imperium habet, populi Romani esse arbiter: 1. Maris communem usum omnibus hominibus, ut aeris, iactasque in id pilas eius esse qui iecerit; sed id concedendum non esse, si deterior litoris marisque usus eo modo futurus sit."

For further discussion of this passage, see: Bouvé, *op. cit.* p. 232; de La Pradelle, *op. cit.* p. 295; Lardone, *op. cit.* p. 461; Sweeney, *op. cit.* p. 368.

⁴⁷The Latin text reads: ". . . et . . . mare commune omnium est et litora, sicuti aer . . ."

For further discussion of this passage, see: Bouvé, *op. cit.* p. 232; de la Pradelle, *op. cit.* p. 295, 299; Lardone, *op. cit.* p. 461; Sweeney, *op. cit.* p. 368.

⁴⁸Harper's *Latin Dictionary*; Forcellini, *Totius latinitatis lexicon*.

⁴⁹"Terra circumfusa undique est hac animali spirabilique natura, cui nomen est aër, Graecum illud quidem, sed perceptum jam tamen usu a nostris; tritum est enim pro Latino, Cic. N.D. 2, 36, 91." Harper's *Latin Dictionary*, see under *Aer*.

"*aer*," as the atmosphere we breathe, and "*coelum*," as the area (sky or air-space) in which the air circulates. None of the Roman texts ever refer to the "*coelum*" as being "common to all," and therefore not capable of becoming private property. As will appear from the passages cited in the previous section, when space was to be measured for inclusion in a new building (so as to insure against infringement of a neighbor's rights) the word "*coelum*" was used, not "*aer*."⁵⁰ When the law required space over public ground or a highway to be kept free and unobstructed, the word "*coelum*" was again used,⁵¹ also when referring to the space to be protected over a tomb as being part of the tomb itself.⁵² "*Coelum*" (airspace) was subject to private and exclusive rights. "*Aer*" (air) was common to all men. There was no confusion. One represented an area and the other the element used for breathing.⁵³

Few apparent exceptions to the carefully distinguished use of these two words have been found. Only one is of any importance. It has been curiously overlooked by the commentators. In the passage from the Digest cited above (Digest XLVII.10.13.7), Ulpian says:

If however I prohibit anyone from fishing in front of my buildings or mansion, what should be said? Am I liable for damages or not? For indeed the sea is common to all as well as the shores, just as the air (*aer*), and it has often been ruled that one cannot be prevented from fishing: nor from bird catching, except that one may be prevented from entering another's field.⁵⁴

This passage is often cited as evidence that rights of private property cannot exist on the shore and in the sea and that therefore Roman law denied

⁵⁰See note 36 *supra*.

⁵¹See note 18 *supra*.

⁵²See note 24 *supra*.

⁵³"It was the *aer* — the omnipresent medium, never at rest and incapable of appropriation — that was *res communis*. It was so because necessary for the life and health of all. But in contrast with it the *coelum* was *res soli* and capable more or less of appropriation by the owner of the soil . . . The common use of *aer* is indeed asserted by many passages in the *Digest*, but private ownership of the *coelum* is also asserted. There is no inconsistency": Goudy, *op. cit.* pp. 231, 232.

Sandars [*op. cit.* p. 81], discussing Institutes II.1.1 — that the air and the sea were common to mankind — has no doubt that Roman law meant the air we breathe when using the word "*aer*," for he notes that "a man inhale the air or float his ship on any part of the sea."

Lardone [*op. cit.* p. 461, 462], notes that the glossators and commentators gave no particular explanation of the word "*aer*" except that Donnellus refers to "*aer ad spiradum* [air for breathing]."

Sohm [*op. cit.* p. 303] includes in "*res omnium communes*" "the open air" and in the same paragraph refers to it again as "the atmosphere of the earth."

⁵⁴The Latin text reads: "*Si quem tamen ante aedes meas vel ante praeterium meum piscari prohibeam, quid dicendum est? me iniuriarum iudicio teneri an non? et quidem mare commune omnium est et litora, sicuti aer, et est saepissimo rescriptum non posse*

exclusive fishing rights in the sea. Its application to air law, though somewhat incidental, must also be noted. Ulpian seems to use the word "*aer*" as applicable both to the gaseous air supporting the bird in flight and to the airspace through which the bird flew. He apparently holds that the flight of an arrow or other missile used to kill wild birds over lands not owned by the hunter did not constitute a trespass although trespass would occur if the hunter entered the lands. This passage is support for the views that space ownership rights in Roman law were limited to areas close to the surface, or that incidental and transitory interference with airspace above the landowner's property was not actionable, provided no real damage was caused, even though such space was part of the property. It has a legal effect quite similar to that passage cited earlier in which it was held that branches projecting from a neighbor's field are prohibited over my field only up to a height of fifteen feet, because the higher branches do not cause real damage to the field. The rule is different if any branches are over my house which permanently obstruct my airspace.⁵⁵

VII

Considering together all of the available passages from the Digest, the Institutes and the Code, no actual conflict exists. On the contrary, the applicable passages are quite consistent. As stated earlier, Roman law was very practical. It recognized conditions under which man lived.

The original texts show the following: (1) that the airspace over lands not subject to private ownership, such as public and religious lands, had the same legal status as the surface, and that the state exercised control in such airspace to prevent any encroachment; (2) that the airspace over private lands was either (a) the exclusive property of the landowner up to an indefinite height, subject to building restrictions or other state-imposed limitations, or (b) remained under the control of the state subject to a vested exclusive right of occupancy or user by the landowner to the extent from time to time permitted by the state; and (3) that the gaseous "*aer*" needed to sustain life was common to all men, but that this did not prevent the landowner having vested rights in the space (*coelum*) through which the "*aer*" circulated above his property.

quem piscari prohiberi: sed nec aucupari, nisi quod ingredi quis agrum alienum prohiberi potest." See also note 47 *supra*.

Lardone [*op. cit.* p. 461], notes a doubtful reading in the Latin text of *Digest* XVIII. 1.40.3. This is usually given as "*Ex eo quod avibus ex aere cecidisset* [Something which had been dropped from the air by the birds]." He notes that certain manuscripts, however, read "*ex ore* [from the mouth of the bird]." In no event could this passage from the *Digest* be considered an important exception to the general rule that "*aer*" was not used to express the airspace subject to appropriation by the landowner.

⁵⁵See notes 28, 29, 30 *supra*.

So far as international air law is concerned, it is not important whether Roman law created rights of ownership, or of user, in the landowner. The authority of the Roman state as to airspace over Roman lands was exercised without limit whenever and to such height as was found necessary to protect public or private rights to occupy and use such space. Both lands on the surface and usable space above were under the continuing direct or indirect control of the state. Together such lands and space constituted a three-dimensional area in which Roman law was fully effective. This is the primary test of the extent of national territory. It would, therefore, appear that the concept of the inclusion of usable space and lands below within the territory of a state has existed since Roman times.

VIII

When Justinian became emperor in Constantinople, barbarians ruled Italy. In the previous century Rome had been captured by the Goths, had paid bribes to the Huns, had finally been looted and almost destroyed by the Vandals. Roman law, though still vaguely recognized in Italy,⁵⁶ was certainly fast disappearing. That it finally survived must be credited to the military victories of Justinian. Less than twenty years after his legal compilers had finished their work in Constantinople, his armies had overrun Italy and a single Roman emperor again ruled in both east and west. Roman law was given its chance to come back into the land from which it had sprung.

In A.D. 529 Justinian formally ordered the *Corpus Juris Civilis* to be published and put into effect in Italy.⁵⁷ This return of Roman law in the purity of the Justinian compilations preserved it for the future of western Europe.⁵⁸ Even though the rule of the eastern empire collapsed in Italy within a few decades after the death of Justinian, and Germanic tribes took over most of the peninsula, the *Corpus Juris Civilis* never thereafter entirely disappeared from the Italian law courts. Roman law was secure for posterity.

Its second revival must be credited to the School of the Glossators at Bologna. In the period of its greatest activity (A.D. 1100-1250), the school devoted itself to a detailed re-examination of the *Corpus Juris Civilis* in the original texts. "The glossators," as Sohm says, "re-discovered the Digest in the sense that they brought home its meaning — and, with it, the meaning of Roman jurisprudence — to the minds of men once more."⁵⁹

The glossators were annotators. In their notes, or "glosses," appended to various sections of the *Corpus Juris Civilis* they sought by cross-references to bring together various passages of the Digest, which seemed interrelated.

⁵⁶Sohm, *op. cit.* p. 125.

⁵⁷Joseph Louis Elzéar Ortolan, *Explication historique des Instituts de l'empereur Justinien . . .*, 11th ed., Paris, E. Plon, Nourrit, 1883-4, Vol. 1, p. 498.

⁵⁸*Id.* at 499; Sohm, *op. cit.* p. 133.

⁵⁹Sohm, *op. cit.* p. 139.

They also sought by such glosses to clarify what they considered to be the meaning of the text. Their views reflect both their interpretation of the Roman texts and a statement of the law as they believed it to exist in their own day. The works of the glossators show the existence of rights in space in the twelfth and thirteenth centuries, just as the original Roman law texts provided for rights in space protected by law in Roman times.

The last and perhaps the greatest of the glossators was Franciscus Accursius.⁶⁰ To him are accredited certain of the glosses directly applicable to the texts of Roman law dealing with the legal relationship between land and the space above.⁶¹ The most important gloss is that which appears as a note to the famous passage of the Digest (VIII.2.1) describing limitations on servitudes when a public highway intervened between two properties concerned. The original text of the Digest stated that the airspace over the highway ought to be free ("*quia coelum, quod supra id solum intercedit, liberum esse debet*").⁶² The gloss to this passage, as attributed to Accursius, reads as follows: "*Nota. Cujus est solum, ejus debet esse usque ad coelum, ut hic, & infra 'quod vi aut clam' i fi. § pen.*" This may be translated: "Whose is the soil, his it ought to be up to the heaven; as here and later in Digest XLIII. 24.22.4."⁶³

⁶⁰Franciscus Accursius, born Florence, Italy, 1182, died 1260. Under his direction the *Glossa ordinaria* (sometimes known as the "Great Gloss") was completed at Bologna about A.D. 1250, containing most of the comments and remarks made up to that time on the *Code*, the *Institutes* and the *Digest*. According to Encyc. Britannica (11th ed., Vol. 1, p. 134), the best edition of the *Glossa* is that of Godefroy published at Lyons, 1589.

The eldest son of Accursius (also named Franciscus) went to England on the invitation of King Edward I and lectured on the law for a time at Oxford. This may have been the connection between the work of the glossators at Bologna and English legal thinking.

For other data as to life and career of Accursius, see: Bouvé, *op. cit.* p. 248; McNair, *op. cit.* pp. 15, 17, note 1; Sohm, *op. cit.* pp. 136-137; Sweeney, *op. cit.* p. 364.

Grotius [§ 53, *Prolegomena to De jure belli ac pacis libri tres*, translation of 1646 edition by Francis W. Kelsey, Oxford, Clarendon Press, London, H. Milford, 1925 (*Classics of International Law* No. 3 — publications of the Carnegie Endowment for International Peace, Division of International Law, Washington, D.C.), Vol. 2, p. 28 of translation,] lists Accursius with Bartolus as among those "who long ruled the bar." This indicates the great influence of the work of Accursius as the head of the Bologna school.

⁶¹Bouvé, *op. cit.* pp. 247-248; de La Pradelle, *op. cit.* p. 300; McNair, *op. cit.* p. 15; Sauze, *op. cit.* pp. 25-26; Sweeney, *op. cit.* pp. 363-364.

Guibé [*op. cit.* p. 38] is generally credited with having done research work verifying Accursius as the author of the most important glosses affecting the problem.

⁶²For full Latin text and citations as to this passage, see note 18 *supra*.

⁶³This text of the gloss has been verified as appearing in the following fifteenth and sixteenth century edition of the *Digest*: Venice, J. Le Rouge, 1477; Nuremberg, Koberger, 1482; Venice, Herbort, 1482; Venice, 1484; Venice, M. de Tortis, 1488; Venice, Raynaldus de Novimagio, 1489; Venice, B. de Tortis, 1490; Venice, Torresanus, 1491; Venice, B. de Tortis, 1494; Venice, B. de Tortis, 1498; Lyons, 1531; Lyons, 1537; Lyons, Hugonem, 1542; Paris, Guillard & Desboys, 1548; Lyons, 1552; Paris, Merlin,

The cross-reference in the gloss is to the passage in the Digest which states that the airspace ("coelum") over a tomb is part of the tomb.⁶⁴ Both the passage to which the gloss is a note and the passage mentioned in the cross-reference dealt with airspace over lands not private property.

It is the present author's view that this gloss of Accursius to Digest VIII.2.1 was a statement by the glossator that the rule in the text of the Digest applicable to space over public property should also apply to space over private property. This would mean that the glossator construed the law to be that airspace over lands privately owned ought to be ("debet esse") free and unobstructed without limit — in other words, that the law was effective to protect from encroachment the airspace over private as well as public lands.

Available fifteenth and sixteenth century editions of the Code contain important glosses to the passage in Code III.34.8. This is the passage which provides that no right of action exists against one who raises his own house if there is no existing servitude.⁶⁵ The gloss is found in several different forms. One of the earliest, as expanded, reads as follows: "*Videdur ergo quod quodlibet praedium praesumitur liberum nisi probetur contrarium est enim cuiuslibet usque ad celum . . .*"⁶⁶ This may be translated as: "It was adjudged, therefore, that every property is presumed free unless the contrary be proved, for everyone's [right] extends up to the skies."

In several other fifteenth century editions the word "*usus*" is inserted between the words "*cuiuslibet*" and "*usque*" so that it might be translated as follows: "It was adjudged, therefore, that every property is presumed free unless the contrary be proved, for everyone's use extends up to the skies."⁶⁷

In certain other fifteenth century editions, the words "*unus usus*" have been inserted instead of the word "*usus*" alone,⁶⁸ so that the gloss might be tran-

1559; Paris, Merlin, 1566; Lyons, J. Ausultus, 1566; Lyons, Hugonem, 1572; Paris, 1576; Antwerp, Nutii, 1576; Lyons, 1580; Venice, 1584; Lyons, 1589.

The name of Accursius is appended to the gloss in the 1477 and 1491 Venice editions listed above. Guibé [*op. cit.* p. 38] notes the signature of Accursius ("Acc."), in a 1519 Paris edition. See also as to this gloss: Sweeney, *op. cit.* p. 365; de La Pradelle, *op. cit.* p. 300; McNair, *op. cit.* p. 15.

⁶⁴See note 24 *supra*. Guibé [*op. cit.* p. 39] quotes a gloss by Accursius to this passage in the following words "*coelum, quod supra solum intercedit, liberum esse debet.*" He notes [p. 40] that Accursius never used at any time an expression equivalent to "property in space," but said only that "he who has the land, ought to have up to the heavens" [*celui qui a le sol doit l'avoir jusqu'aux cieux*"]. He apparently feels that the original glosses of Accursius have been construed by later authors into forms similar to the well-known maxim attributing the ownership of the landowner up to infinity.

⁶⁵See note 36 *supra*.

⁶⁶Mainz, Schoeffer, 1475, folio [84] verso. See also: McNair, *op. cit.* p. 16; de La Pradelle, *op. cit.* p. 301; Sweeney, *op. cit.* p. 367, note 126.

⁶⁷This text of the gloss has been verified as appearing in the following editions: Nuremberg, Sensenschmidt, 1475; Venice, J. Le Rouge, 1478; Basle, Wenssler, 1487; Nuremberg, Koberger, 1488; Venice, Gorgius Arrivabenus, 1491.

⁶⁸Venice, B. de Tortis, 1490, 1495, 1496, folio [56] verso.

slated as follows: "It was adjudged, therefore, that every property is presumed free unless the contrary be proved, for everyone's use alone extends up to the skies."

In the sixteenth century the early forms of this gloss materially changed. In certain editions it has been found to read: "*Videtur ergo quod quodlibet praedium praesumitur liberum nisi probetur contrarium est enim cujuslibet solum usque ad coelum.*"⁶⁹ The gloss in this form might be translated as follows: "It is adjudged, therefore, that every property is presumed free unless the contrary be proved, for whosever is the land, his it is up to the skies."

In other sixteenth century editions of the Code the last sentence of the gloss reads "*est enim eius usque ad coelum, cuius est solum.*"⁷⁰ This late form of the gloss bears a strong resemblance to the English legal maxim *Cujus est solum, ejus est usque ad coelum* to be discussed later.

Two other glosses (quoted by de Lapradelle) are also of interest. To the passage in the Digest VIII.2.9, stating that no right of action exists where a man by raising the height of his house cuts off the flow of light to that of his neighbor, unless subject to a servitude, the following gloss has been found: "*Quia coelum quod supra aedes meas est usque ad coelum, si non debeo alii servitutem.*"⁷¹ This might be translated: "Because the airspace which is above my house extends to the skies if I owe no servitude to another." Again the gloss does not indicate space ownership but merely a right of the landowner to build upward without limit if no servitude prevents.

Also to the passage in the Digest XLIII.24.21.2, providing that in the case of new work both airspace and land must be measured, the following gloss has been found: "*Quia coelum quod supra aedes meas usque ad coelum liberum esse debet.*"⁷² This gloss might be translated: "Because the airspace which is above my house ought to be free up to the skies." In both this gloss and the one noted just previously, the word "*coelum*" as first used has the significance "airspace" as in the Digest itself. The second use of the word "*coelum*" in the phrase "*usque ad coelum*" appears in a sense not found in the Digest, but which seems to be similar to the phrase "*in infinito*" used in the Digest in the sense of "without limit" or "as high as one pleases."

⁶⁹Lyons, François Fradin, 1527, folio 117, verso; Lyons, 1537, folio 122, verso; Lyons, Johannes Ausultus, 1567, columns 487, 488; Lyons, 1580, columns 487, 488.

⁷⁰Lyons, 1532, folio 122, verso; Lyons, Hugonem, 1542, folio 122, verso; Lyons, 1553, p. 286; Paris, Merlin, 1559, columns 575, 576; Paris, Merlin, 1566, columns 575, 576; Lyons, 1569, columns 575, 576; Lyons, Hugonem, 1572, columns 575, 576; Paris, 1576, columns 653, 654; Antwerp, Nutii, 1576, columns 575, 576; Venice, 1584, columns 653, 654; Lyons, 1585, columns 487, 488; Lyons, 1589, columns 653, 654.

As to this and similar late forms of the gloss, see also: McNair, *op. cit.* p. 16; Sweeney, *op. cit.* p. 367, note 126; de La Pradelle, *op. cit.* p. 301.

⁷¹de La Pradelle, *op. cit.* p. 301. For Latin text of Digest VIII.2.9, see note 37 *supra*.

⁷²de La Pradelle, *op. cit.* p. 301; McNair, *op. cit.* p. 15, also notes this gloss.

A critical examination of the available glosses shows the following: (1) that in the earliest glosses (particularly in those which can be attributed to Accursius and his thirteenth century school) there is a clear indication that the landowner had *rights* in space protected by law. The original gloss to Digest VIII.2.1 continued in the form "cujus est solum ejus *debet esse* usque ad coelum" through the sixteenth century. This does not appear to be a statement claiming absolute ownership; (2) that in other forms of the gloss (particularly that to Code III.34.8) various editors amended the gloss so that in the sixteenth century it might be construed as a statement of ownership of space to an indefinite height by the owner of lands on the surface; (3) that these and other glosses show without question that from the twelfth through the sixteenth century the law of the subjacent state was always effective in space to the extent necessary to protect the legal rights to the use of such space given by the state to its citizens.⁷³

IX

Grotius, writing in 1625, recognized the existence of the application of law in space above land. In his Book II, Chapter 2, Section 3(1) of the *De jure belli ac pacis*, writing of the reasons why the sea could not become subject to private ownership, he said: "The cause which led to the abandonment of common ownership here ceases to be operative. The extent of the ocean is in fact so great that it suffices for any possible use on the part of all peoples, for drawing water, for fishing, for sailing. The same thing would need to be said,

⁷³See also: a) the note "De aere" of Bartolemeo Cipollo [*Tractatus illustrium in utraque tum pontificii tum Caesarei, de contractibus licitis*, Venice, 1584, p. 243]. Cipolla died about 1477. In this note, he says that the use of the air like the sea and the seashores is common; that the air ought to be free above a house up to the skies ("*aer supra domum nostrum debet esse liber usque ad coelum*"), citing the gloss referred to in Section VIII *supra*; that it is not lawful to build a bridge over a public way. He cites other cases indicating that the airspace above both public and private lands is protected by law from encroachment; also an amusing case of a clown banished from Ferrera who went to Padua, there placing some Paduan soil in a cart, returned to Ferrera in the cart contending without avail that he was on Paduan soil and not in the territory of Ferrera, — but Ferrera evidently protected its territorial sovereignty, although the clown was not touching its land.

b) The statement of Cujacius in the sixteenth century that "*Quo jure est coelum eodem jure esse debet solum et contra*," which might be translated as "Whatever is the legal status of the airspace, the same ought to be the status of the land and vice versa." [Quoted by Goudy, *op. cit.* p. 230].

c) The statement of Godefroy in the sixteenth century commenting on Digest VIII.2.1 (the same passage covered by the principal gloss of Accursius) and Digest XLIII.24.22.4, as follows: "*Cujus solum, ejus coelum*," probably meaning that the legal status of lands and airspace are the same. [Sauze, *op. cit.* p. 27. See also notes 18 and 24 *supra* for Latin text of passages referred to by Godefroy.]

too, about the air, if it were capable of any use for which the use of the land also is not required, as it is for the catching of birds. Fowling, therefore, and similar pursuits, are subject to the law laid down by him who has control over the land."⁷⁴ Grotius added the following note: "And the right of habitation. 'It is necessary to measure the sky as well as the ground,' says Pomponius, Digest XLIII.xxxiv.21 [§ 2]; add also Digest XVII.ii.83."⁷⁵

⁷⁴p. 190 of translation.

⁷⁵An interesting discussion and commentary on the views of Grotius as to the sea, compared to the air and its uses, is found in the notes by Henricus de Cocceius [Hugonis Grotii *De jure belli ac pacis libri tres*, cum annotatis auctoris, nec non J. F. Gronovii Notis, & J. Barbeyracii Animadversionibus; Lausanne, Marci-Michaelis Bousquet, 1751, Vol. 2, pp. 86-87].

Cocceius apparently felt that Grotius had held that the air as distinguished from the sea could come into private ownership — in which view Cocceius is referring to breathable air and not to airspace, for he says [words in italics are Grotius' statements; words not italicized are Cocceius' remarks]:

"The same should be said about the air if there could be any use of it. The comparison made by the author [Grotius] between air and the sea is poor. For the sea is a thing where the substance can be separated from the use, and so in that instance there is one kind of right in respect of substance, and another in respect of use. The air however consists in being consumed, i.e., its very substance is consumed by use, and such things can only be said to be occupied in so far as we use them. Furthermore the author is wrong in saying that there is no use of air *per se*, for B. Stryk (in *Disput. de jure principis aereo*) has well set forth the important effects of the law of air. [Stryk's dissertation is discussed in Section X *infra*.]

"That is for bird-catching. The author's meaning, obscure though it be, seems to be this: like the *sea* so also the *air* can be occupied neither in whole nor in part, even if there could be any use of the air apart from terrestrial aid — i.e., if men could live in the air without touching the earth. Since however there can hardly be use of the air without terrestrial aid, the author concludes from this that air follows the law of the earth, and so the air can be occupied not *per se*, but by the rights of the earth. This he illustrates by example of bird-catching: for birds which fly in the air are truly *res nullius*, and so far may be taken by anyone, for the air is common like the sea. But, he says, one who has occupied a field can prohibit another from entering the estate and so prevent the right of using the air indirectly through land right. Here also the author in his notes adduces dwelling rights: for air is occupied by the position of a building, and this occupation too comes about through land law. This argument has more subtlety than truth. By its nature air can be occupied neither *per se* nor by land law, since it is not such a thing that it can be occupied, i.e., can be brought under our power. Since therefore air is in no-one's ownership, anyone may use it and no-one can be excluded from its use. The example of bird-catching clearly does not apply here: for bird-catching is use not of the air but of the earth, nor does use of the air consist in taking birds, but in breathing and inhaling air. See Diss. Procem. XII, par. 217.

"Whence these things derive their law from him who has sovereignty of the earth. The effect of this is that bird-catching can be prohibited by civil law. And this is what Grotius says *passim*; dominion can be forestalled by civil law. (Dissert. Procem. VI, par. 18, n. 1). Indeed private individuals too who share dominions, can prevent others from entering their estates to hunt: not to the effect that the bird should not belong to its taker, for it is a *res nullius* and falls to the occupier, but so that an action for damages may apply to

Grotius, going back to the original Latin texts (not to the glosses), nevertheless recognized that the landowner had rights in airspace over his property and that the law applicable to the land would be applied in space over the land.

If Grotius did not directly discuss the possibility of sovereignty in space above lands, the same cannot be said of Pufendorf. The latter, in his *De jure naturae et gentium*,⁷⁶ Book IV, Chapter 5, Section 5, discussing the right which men had to maintain sovereignty over the sea and the possibility of it being done physically by the use of ships, said: "Now it is obvious that the gift of God, whereby man was given the right to assume sovereignty over the land included also the sea. A twofold command was given: Have dominion over the fish of the sea and over the beasts of the land. But sovereignty over animals is inconceivable without the right as well of controlling the element which they inhabit, so far as its nature allows. Mention is made of the fowls of the heaven as well, yet since man has been denied the ability to be in the air to the extent that he rest in it alone, and be separated from the earth, he has been unable to

the one who enters another's estate against the will of the master."

As further evidence that Cocceius confused air with airspace and for that reason disagreed with the views expressed by Grotius, see the following additional comment from Cocceius' *Dissertation Procem.* XII, § 217 [*op. cit.* Vol. 6, pp. 379, 380] referred to in the above-quoted notes:

"Among things common or public by the law of nations are included:

"I. AIR, for the extent of the particles which form air is inexhaustible, indefinite, and indeterminate, and changes from moment to moment; and so by its own nature cannot be occupied, *i.e.*, brought into our power and custody.

"Since therefore there is no-one who can say that the air is his, it necessarily follows that its use is common, and open to all peoples and individuals, because no-one has a legal right of prohibition. Any man therefore can hunt birds, and whatever is taken in the air becomes immediately the property of the taker, even in a place whose ownership has been occupied by another: for both the air and the bird itself belong to no-one.

"Note 1. Grotius decides that air can come into private ownership, and in this respect its nature is unlike that of the sea, since it has no use for which use of the earth is not necessary. Since therefore this land receives its law from the one who has sovereignty over the land, he concludes that the air too can receive its law from the sovereign, and says that on these grounds bird-catching can be forbidden.

"It should however be well understood that prohibition of the law does not prevent the air from remaining common, *i.e.*, belonging to no-one, and does not prevent a bird taken in the air from becoming the property of the taker. The Roman laws show us that a wild beast, even though taken on the property of another, becomes the property of the taker, since what belongs to no-one falls to the occupier. He who takes it, however, if he has, against the prohibition of the law, entered the estate of another, may be liable for an action for damages from the owner of the estate. Even although then an estate may belong to a person by the right of *dominium*, it still does not follow from this that he is the owner also of the air, much less of the birds flying in the air, since neither the air nor a bird is ever in the physical possession of the owner."

⁷⁶Samuel Pufendorf, *De jure naturae et gentium libri octo*, translation of 1688, edition by C. H. Oldfather and W. A. Oldfather, Oxford, Clarendon Press, London, H. Milford, 1934, (*Classics of International Law* No. 17 — publications of the Carnegie Endowment for International Peace, Division of International Law, Washington, D.C.)

exercise sovereignty over the air, except in so far as men standing upon the earth can reach it. But it has been possible for sovereignty to be exercised more widely on the sea by means of ships, which are now brought to the highest degree of perfection, and not only serve for the transport of burdens but also carry on war over the domains of Neptune in a far more terrible form than it is waged upon land."⁷⁷

Pufendorf's statement is a clear holding that so far as man had used the air (airspace) over the land, to that extent at least had the state already assumed and exercised rights of sovereignty in space.

X

The first treatise in which air law is separately considered, so far as is now known, is the dissertation *De jure principis aereo*, presented in October 1687 by an otherwise unknown scholar, Jean-Etienne Danck, a candidate for a law degree at the University of Frankfurt. This treatise was presented before Samuel Stryk, then a professor of law at Frankfurt (Germany), and was afterwards included in Stryk's collected works known as *Strykii opera* published in Florence in 1837-1841.⁷⁸ The dissertation evidences wide knowledge and research in the *Corpus Juris Civilis*, classical writers, and contemporary law writers including the works of Grotius and others.

The purpose of the dissertation, as its title implies, was to present the law of the air as applied to the prince or ruler, — in other words, to present legal questions on sovereignty in the airspace. It states in great detail the general position of space rights as of the latter part of the seventeenth century.

Air law, according to the treatise, is defined as the law concerning the air and those things which are in the air and which border upon it. The question is raised as to whether the ruler can sustain rights over the air in view of the provisions of Roman law that the air is common to all and is free. But it is held that this does not limit the power of the ruler because jurisdiction over everything connected with the earth is entrusted to the ruler by divine power. So the ruler should use his powers for various purposes such as prevention of pollution of the air which might bring disease. The rights of society must be conserved.

Discussing the building rights of the ruler, the treatise points out that under the law the ruler is not limited by building restrictions in constructing his castle, although such restrictions are applicable to his subjects. Citing the Digest of Justinian as to the airspace over tombs being kept free (XLIII.24.

⁷⁷p. 560 of translation.

⁷⁸Vol. 5, (1838), p. 1190. The existence of this dissertation was disclosed by Nys in 1911 ["Une dissertation du XVIIIe siècle sur le droit aérien," *Revue de droit international et de législation comparée*, Vol. 43 (2nd series, Vol. 13), 1911, pp. 323-325.] Nys does not mention the book in which he found the dissertation, but it is assumed to be the same source referred to in the text.

22.4), and the provision that the airspace over highways and other public lands should also be free (VIII.2.1), as well as the gloss on the latter provision, discussed in Section VIII *supra*, he states that the "*coelum*" which is above anyone's land ought to be free ("*liberum esse debet*" — paraphrasing this gloss of Accursius). He continued that while the air follows the land and so to him whose is the land should be the air even up to the skies, nevertheless and notwithstanding these private space rights, the ruler can control private building. Classical authority is cited as to the existence of building restrictions in Rome enacted by the Emperors Hadrian and Trajan. An ordinance of the German Empire of 1559 requiring the destruction of castles which menaced the security of travelers below is also cited. All of these provisions show the existence of sovereignty of the ruler in space, overriding private building rights.

The treatise also points out that in the German Empire the air rights were part of the "*regalia*" or source of personal income of the ruler. Accordingly the ruler levied a tax on windmills and private interests were not allowed to construct windmills using the air belonging to the ruler except upon payment of the tax and receipt of a license. Also under German law sovereignty over the air carried with it a monopoly held by the ruler of the privilege of engaging in the hunting of birds.

While much of the treatise deals with matters which now appear of little importance, its purport is very clear. As of the time in which it was prepared the law of the states of the German Empire recognized complete control by the ruler in space above the earth's surface for any purpose to which such space had then been put. Clearly space was as much a part of the territory in which the ruler exercised sovereign powers as were the lands below. In fact, in some ways the ruler seems to have had even greater powers in space than on territorial lands.

XI

No less clear was the English common law as to the recognition and protection by national law of rights in space.

In the sixteenth century the principles of Roman airspace law made their first presently determined appearance in English law, not however in the actual language of the *Corpus Juris Civilis* or even of the original glosses to the Digest, but rather in one of the more arbitrary forms of the maxim *Cujus est solum, ejus est usque ad coelum* (Who owns the land, owns even to the skies). In the case of *Bury v. Pope*, at the end of the report of the case, appears the following. "*Nota. — Cujus est solum, ejus est summitas usque ad coelum. Temp. Ed. I.*"⁷⁹ The maxim as here stated might be translated as "Who owns

⁷⁹*Bury v. Pope* (1586), Cro. Eliz. 118. Whether this means that the rule stated in the maxim had been in force in England since the time of Edward I has been much discussed. For general comment on the case, see: Harold D. Hazeltine, *The Law of the Air*, London, Univ. of London Press, 1911, p. 62; McNair, *op. cit.* p. 17; Sweeney, *op. cit.* p. 355.

the land, his is the highest place even to the skies." The word "*summitas*" is not found in classical Latin.

The maxim, in its more ordinary form, appears in the often-cited passage from *Coke on Littleton* (written about 1628): "And lastly, the earth hath in law a great extent upwards, not only of water, as hath been said, but of ayre and all other things, even up to heaven, for *cujus est solum ejus est usque ad coelum* . . ." ⁸⁰

Selden in the *Mare clausum*, published about seven years after Coke,⁸¹ being a much sounder scholar than Coke, returned to the original Roman texts to sustain his position on rights in space. Discussing the possibility of possession and sovereignty over the seas and other bodies of water and arguing by analogy from the status of the air and the space in which it circulated, he insisted (in the language of the 17th century English translation from the original Latin) that the fluid nature of water and its continued shifting in a channel no more prejudiced "Dominion and Possession, that the fluid nature of the Aër doth the Dominion and Possession of that space which confines a Hous from the Foundation upward."⁸² Citing Pomponius in Digest XLIII.24. 21.2 that the *aër* "ought to be measured as well as the ground," he held it to be evident that the "aër is his who is owner of a plot of ground." (This is the same passage from the Digest cited by Grotius in his *De jure belli ac pacis*).⁸³

His conclusion was that "therefore, surely wee are owners of the ground, hous, and space, which wee possess in several as owners, that every one, for his best advantage, may freely and fully use and enjoy his bordering Aër (which is the element of mankind) how fitting soever it be, together with the space thereof in such a manner, and restrain others thence at pleasure, that hee may bee both reputed and settled owner thereof in Particular."⁸⁴ Selden had no difficulty in thus stating the law of his day, without reference to the glosses or the maxim relied on by Coke, and based on his contemporary construction of the Roman texts as applicable to existing conditions. Airspace and air were different things at law. In airspace, private rights existed protected by law.

Blackstone, writing in 1765-1768 and relying upon Coke, (as Hazeltine and many other commentators have noted)⁸⁵ stated the maxim and its application as follows: "Land hath also, in its legal signification, an indefinite extent

⁸⁰L. I., C. I. Sect. 1. 4 (a).

For the most complete available discussion of the various forms in which this maxim has appeared, see Sweeney, *op. cit.* pp. 355-373.

⁸¹John Selden, *Mare clausum: The Right and Dominion of the Sea* . . . , translated by J. H. Gent, London, 1663.

⁸²*Id.* Bk. I, Chap. 21 (p. 132 of translation).

⁸³See Section IX *supra*.

⁸⁴Selden, *op. cit.* Bk. I, Chap. 21 (p. 133 of translation).

⁸⁵Hazeltine, *op. cit.* p. 62.

upwards as well as downwards. *Cujus est solum, ejus est usque ad coelum*, is the maxim of the law, upwards; therefore no man may erect any building, or the like, to overhang another's land . . . So that the word 'land' is not only the face of the earth, but everything under it, or over it."⁸⁶

XII

It is now generally conceded that the language of the maxim *Cujus est solum, ejus est usque ad coelum* was not part of Roman written law. It is not in the *Corpus Juris Civilis*. Literally translated the maxim leads to the obvious absurdity of claiming for the landowner private exclusive "*dominium*" (ownership) of space above his lands up to infinity. When the maxim is carefully analyzed, however, and reasonably construed, it is apparent that it must have sprung originally from principles of Roman law — though stated in a non-Roman manner.

Roman law was never guilty of extravagant statements of private property rights. It was always able to reconcile a certain amount of equitable discretion with fixed rules.⁸⁷ As will be seen from an examination of the texts of the *Corpus Juris Civilis* cited and discussed in Sections IV and VIII *supra*, Roman law protected the needed rights of the landowner to the use and enjoyment of space above his lands, whether occupied by buildings or used as cultivated fields, implying, though not stating, that these space rights constituted "*dominium*" (ownership), but without fixing definitely the height in space to which these rights extended. Similarly, Roman law protected from encroachment, for the benefit of the public, space above such land as highways, sacred places and tombs.

But nowhere in the original Roman texts has been found any statement that the owner of the surface also owned space above "up to the skies" or "to infinity" (as the maxim is capable of being translated and interpreted). It is at this point that the maxim may be charged with having a non-Roman origin. The closest approach to anything that would resemble this literal interpretation is found in a passage from Paul in the Digest (see note 35 *supra* as to Digest VIII.2.24). In this passage the landowner is authorized to extend his building upward without limit. The Latin phrase used, "*in infinito*," is however an idiomatic expression properly translated as "without limit" or "as high as he pleases" or "as far as he wishes." Even this passage did not state that the landowner had "*dominium*" in space before he occupied it by the construction of a building or beyond the point where it was to his interest that such space be free of obstructions.

The maxim probably had, as indicated above, its indirect origin in the work of the glossators. But it is evident that between the date of the original glosses

⁸⁶*Commentaries*, 4th ed., 1770, Bk II, Chap. 2, p. 18.

⁸⁷Sohm, *op. cit.* p. 130.

and the appearance of the maxim over three hundred years later in *Bury v. Pope* a significant change had been made. The words "*debet esse*" (ought to be) of the more important glosses had become "*est*" (is). By this change the statement in the glosses that the landowner ought to have the use or enjoyment of the airspace over his property to an indefinite height had become, in the maxim (particularly as cited by Coke), a statement of the existence of present ownership of space to infinity. The principle received into the English common law that a landowner has legal rights in space was of Roman origin though the exaggerated form of the statement is probably not of Roman origin.

But to Roman law can certainly be attributed the source to which we must look for the more important principle that state law has, since time immemorial, been made effective to an undetermined height in space to protect the rights of landowners in such space. This principle the English law accepted certainly as early as the sixteenth century. No English lawmaker from then onwards would have questioned English sovereignty in space over its lands and water.

XIII

In France these principles of Roman law were similarly translated into rules of property. In the *Coutume de Paris*, effective by the end of the seventeenth century, Article 187 (which itself took the place of Articles 81 and 83 of an even earlier law), provided in substance that whoever has the land is able and ought to have all above and below his land and can build above and below. "*Quiconque a le sol . . . il peut & doit avoir le dessus & le dessous de son sol, & peut édifier pardessus & pardessous . . .*"⁸⁸

Ferrière, in his authoritative 1714 commentaries on this article, summarizes certain of the Roman texts and says: "*cujus est solem ejus est coelum*" (whose is the land his is the airspace). He adds that this article of the *Coutume de Paris* conforms to the common law in that it is permissible for the owner of a property to build on it as high as he pleases, founded on the principle *Cujus est solum, ipsius coelum est*. He remarks that no general ordinance in France had ever specifically limited buildings to a certain height. However, he makes it clear that private rights in space can be regulated by the sovereign power. He cites judicial decrees of 1558 and 1559 in which it had been held that a wall raised by a neighbor so high that the adjoining house was entirely obscured should be reduced in proportions fixed by the decrees. Certain local building ordinances are quoted, including a royal ordinance of August 1, 1609 providing building regulations in Paris.

As elsewhere in Europe it is apparent that French law prior to the discovery of the art of human flight had recognized rights in space in connection

⁸⁸Claude de Ferrière, *Corps et compilation de tous les commentaires anciens et modernes sur la Coutume de Paris*, 2d ed., Paris, C. Osmont, 1714, Vol. 2, column 1543.

with the ownership of lands and that the state exercised sovereign powers in space either to protect these rights or to regulate the same if the public interest so required. This is the exercise of rights of territorial sovereignty.

XIV

The discovery of the art of flight in 1783 and the use of space thereafter as a medium of transport could not change prior existing authority of the state in space. When states assert and exercise exclusive territorial sovereignty in fixed areas for one purpose, they assert and exercise it for all other purposes in the same area. Sovereignty required and asserted to protect recognized private rights for building, for light and air, and other means of enjoyment in space connected with interests in lands below, would necessarily carry with it sovereign rights of the state to regulate all other human activity in the same space areas as part of its territory, including such activity as flight.

The civil codes adopted in the nineteenth century in many states, including France, Austria, Germany and Italy, and in the Province of Quebec (Canada), together with judicial decisions in Great Britain and the United States, defining landowner's space rights, are clear evidence of the continued assertion of territorial sovereignty in space above national lands and waters.

The French Civil Code (*Code Napoléon*) took effect in 1804. In later years it was used as the model for other civil codes in many parts of the world.

Article 552 of the French Civil Code categorically declares that ownership of the land includes ownership of what is over and under it.⁸⁹ It is admittedly based on Article 187 of the *Coutume de Paris*, which as stated above, provided that whoever has the land is able and ought to have all above and below and

⁸⁹The full French text of Article 552 is as follows:

"*La propriété du sol emporte la propriété du dessus et du dessous.*

"*Le propriétaire peut faire au-dessus toutes les plantations et constructions qu'il juge à propos, sauf les exceptions établies au titre des Servitudes ou Services fonciers.*

"*Il peut faire au-dessous toutes les constructions et fouilles qu'il jugera à propos, et tirer de ces fouilles tous les produits qu'elles peuvent fournir, sauf les modifications résultant des lois et règlements relatifs aux mines, et des lois et règlements de police.*"

The French text of Article 552 was incorporated without change in the bilingual Civil Code of the Province of Quebec (Canada), effective August 1, 1866, as Article 414. The official English text of this Article of the Quebec Civil Code may, therefore, be taken as an authoritative translation of Article 552 of the French Code. It is as follows:

"414. Ownership of the soil carries with it ownership of what is above and what is below it.

"The proprietor may make upon the soil any plantations or buildings he thinks proper, saving the exceptions in the title 'Of Real Servitudes.'

"He may make below it any buildings or excavations he thinks proper, and draw from such excavations any products they may yield, saving the modifications resulting from the laws and regulations relating to mines, and the laws and regulations of police."

Such was still the Civil Law of both France and the Province of Quebec when the Paris Convention of 1919 was signed.

can build above and below. Portalis, one of the compilers of the French Civil Code, wrote that one would understand that ownership would not be perfect if the landowner were not master of the whole space his domain encloses.⁹⁰

Much learning has been devoted to the legal construction and interpretation to be given to Article 552 so as to state exactly the landowner's rights.⁹¹ Comments of various authors are at times contradictory. Decisions of the French courts have not been entirely consistent. The construction assigned to Article 552 has ranged from an analysis based on the restatement of the maxim *Cujus est solum*, with its arbitrary construction of ownership of space to infinity, to the theory that the article creates no ownership rights except in buildings or other physical additions to the land, but does give the landowner the right to occupy such space over his land as may be used by buildings, trees, crops, and other physical improvements, together with the right to be protected from interference by third parties in the use and enjoyment of his lands and any improvements thereto. The range of meanings which have been given to this article are very reminiscent of the disputes as to the effect of the Roman law itself.

International law is not concerned with the technical construction of Article 552, except in the net result that every sound analysis of the article admits that it creates rights in space in connection with interests in the lands below and protects these rights to an undefined height, whether or not such rights are or are not "ownership." In this sense the adoption of the French Civil Code was a continued assertion as in Roman law by the state of its sovereignty in space over subjacent surface territory to such height as might at any time be necessary to create, protect and regulate the rights defined by Article 552. The later adaptation of the French Code to the use of other states had a similar legal effect in those states.

Section 297 of the Austrian Civil Code produced legal results similar to those created by the French Code but in a somewhat more direct manner.

⁹⁰"On comprend que la propriété serait imparfaite si le propriétaire n'était libre de mettre à profit pour son usage toutes les parties extérieures et intérieures du sol ou du fonds qui lui appartient, et s'il n'était le maître de tout l'espace que son domaine renferme." (Jean E. M. Portalis, Code civil suivi de l'exposé des motifs, 1820, Vol. IV, p. 38, as cited in Lycklama, *op. cit.* p. 75).

⁹¹For general discussion of the effect of Article 552 and an analysis of adjudicated cases and various doctrinal theories, see the following: Charles M. B. Aubry and Charles F. Rau, *Cours de droit civil français d'après la Méthode de Zachariae*, 5th ed., Paris, Marchalet Billard, 1897-1922, Vol. 2, Sec. 192; André Blachère, *L'Air, voie de Droit*, Paris, Larose & Tenin, 1911, pp. 29-67; Henri Guibé, *op. cit.* pp. 35-51; André Henry-Couannier, *Eléments créateurs du droit aérien*, Paris, P. Orbem, 1929, pp. 101-127; Raymond Jammes, *Des actions civiles et pénales qui peuvent naître du fait de la navigation aérienne*, Tulle, L. Mazeyrie, 1912; Charles Louis Julliot, *De l'abus du droit dans ses applications à la locomotion aérienne*, Paris, Larose & Tenin, 1910; and *De la propriété du domaine aérien*, Paris, Larose & Tenin, 1909, pp. 15-19; Marcel Le Goff, *Traité théorique et pratique de droit aérien*, Paris, Dalloz, 1934, Secs. 30-68, pp. 20-39; Maurice Lemoine, *Traité de droit aérien*, Paris, Sirey, 1947, Secs. 171-172, pp. 113-116.

The Austrian Code included in the definition of real property such permanent construction on the ground as houses and other buildings, and also the airspace in a vertical line above.⁹² It thereby recognized that land and space above constitute a single legal unit in which the landowner has definite rights. This section has been construed on eminent authority as a grant of "private rights in airspace" and is one of the bases for a statement that such codes evidence a claim on the part of the state of "sovereignty over the airspace."⁹³

The Italian Civil Code adopted in 1865 and effective January 1, 1866 was influenced by the French Civil Code. Article 440 of the Italian Code, dealing with property in space, provided that he who has ownership of the land has also ownership of the space above the land and of everything which is found above and below the surface.⁹⁴ This article carried into Italian law the older and stricter interpretations of Article 552 of the French Civil Code, for the Italian statute carefully says that the landowner has ownership ("*la proprietà*") of space above the land. It does not state the height to which such ownership extends. But Pampaloni in 1892, analyzing the entire question in a much quoted and authoritative article, concluded that the ownership rights of the landowner in space were not unlimited under Italian law and that the true rule was as follows:

The ownership of the space extends to where it is required by the interest of the owner in regard to the use which it is possible to make of the property in question in the present conditions of human art and industry (interest through any use of the property whatsoever, provided it is actually possible).⁹⁵

Bonfante, insisting that the Italian law did not grant private rights of ownership *in infinitum* as indicated in the maxim *Cujus est solum*, re-examined

⁹²Section 297 of the Austrian Civil Code adopted in 1811 (Allgemein. Bürgerl. Gesetzbuch für das Kaiserthum Oesterreich) reads: "*Ebenso gehören zu den unbeweglichen Sachen diejenigen, welche auf Grund und Boden in der Absicht aufgeführt werden, dass sie stets darauf bleiben sollen, als: Häuser und andere Gebäude mit dem in senkrechter Linie darüber befindlichen Luftraume.*"

Which may be translated as follows: Likewise is considered to be real property that which is permanently erected on the land and soil with the intention that it should remain thereon, such as houses and other buildings, together with the airspace vertically above them."

Comparing this Austrian Code with the much later German Code, Perich said: "As to the Austrian Civil Code, which went into operation at a time (1811) when Roman law alone met all the needs of private legal relations, it is even more than the German Code saturated with Roman Law." *Progress of Continental Law in the 19th Century* (Vol. II Continental Legal History Series) Little Brown & Co., Boston (1918) p. 266.

⁹³Ernst Zitelmann, "Luftschiffahrtrecht," *Zeitschrift für internationales privat- und öffentliches Recht*, Vol. 19, 1909, p. 477.

⁹⁴The Italian text of Article 440 reads: "*Chi ha la proprietà del suolo ha pur quella dello spazio sovrastante e di tutto ciò che si trova sopra e sotto la superficie.*"

⁹⁵Pampaloni, *op. cit.* p. 51. As to further analysis of Pampaloni's views, see: Silvio Trentin, "Il diritto dello stato sullo spazio aereo," Congresso giuridico internazionale per il regolamento della locomozione aerea, 31 maggio — 1-2 giugno 1910, *Atti e relazioni*, Verona, Società tipografica cooperativa, 1910, p. 83.

the positions taken by von Jhering and by Pampaloni (as well as the writings of Hesse, Dernberg and others). He pointed out that there was a legislative lack in the failure of the law to fix the actual limit of ownership in space. This ownership Bonfante believed should be determined by an economic rule. He held that the state, for political reasons of defense and the enforcement of its power, had sovereign rights upwards *in infinitum* within such limits in which human dominion may be exercised, but that the right of private property ceased where economic interests ended. Thus the individual landowner had no right to exclude the entry of aircraft over his land at a height where his economic interest did not induce him to exercise such control. But the state for political reasons could prohibit foreign air navigation up to any height where airships might be found.⁹⁶ Clearly the adoption of Article 440 of the Italian Civil Code was a declaration by Italy of its sovereignty in space at least up to the undefined height where the landowner might have economic interests.

Section 905 of the German Civil Code of 1900 provided that the right of the owner of the land extended to space which is above and the earth which is below the surface of the land, but that the owner cannot prevent the use of such space above or below ground where he has no interest in excluding anyone therefrom.⁹⁷ The German Code was enacted in 1896 after more than twenty years of laborious codification, although it was not made effective until January 1, 1900. It is a legislative determination of the rights of the landowner in space effective long after the use of balloons (and even crude dirigibles) was well-known. It may be said to state a more modern point of view than the early French and Austrian Codes.

Before this Code was adopted, the rights of the landowner in space under Roman law, as generally accepted in Germany, had been the subject of serious and important doctrinal consideration by leading German scholars. In 1830 Gesterding had said that space was not a "thing" or "*res*" in a legal sense; that it was a pure abstraction and therefore not subject to become private property. To Gesterding this did not mean that the airspace was completely open to the use of all. He admitted that it was subject to the authority or occupation of the owner of the subjacent land as a normal consequence of the right of land ownership.⁹⁸

⁹⁶Bonfante, *op. cit.* Vol. 2, Pts. 1-2, p. 219 note 2, pp. 226-227.

⁹⁷The German text of Section 905 (Bürgerl. Gesetzbuch für das Deutsche Reich) reads: "*Das Recht des Eigentümers eines Grundstücks erstreckt sich auf den Raum über der Oberfläche und auf den Erdkörper unter der Oberfläche.*"

"Der Eigentümer kann jedoch Einwirkungen nicht verbieten, die in solcher Höhe oder Tiefe vorgenommen werden, dass er an der Ausschliessung kein Interesse hat."

⁹⁸Franz Christian Gesterding, "Das Märchen von der Luftsäule," *Ausbeute von Nachforschungen über verschiedene rechts materien*, Greifswald, Vol. 3, 1830, p. 447; Bonfante, *op. cit.* p. 221; Pampaloni, *op. cit.* pp. 37-39; Trentin, *op. cit.* p. 83.

In 1863 Werenberg denied that the landowner had rights of property in the air or airspace above, and sought to limit the landowner's actual rights in space to such use as the need of the particular subjacent lands require.⁹⁹

Von Jhering, writing the same year, used his disagreement with Werenberg's thesis as the basis for a discussion of his own views. His resulting analysis perhaps did more to influence subsequent legal thinking on the subject of the rights of the landowner in space than anything published before or since. Re-examining in some detail the Roman sources, von Jhering concluded that the landowner had rights of ownership in airspace above, but that such rights were limited in height above the surface and did not extend to infinity. He felt that such rights did not in fact extend beyond the practical requirements and interests of the landowner.¹⁰⁰ Bonfante pointed out that von Jhering thus gave an economic basis and limitation to a landowner's rights in space.¹⁰¹

The thesis of von Jhering seems to have been carried forward in Section 905 of the German Civil Code discussed above. This section stated in substance that the landowner's rights extend indefinitely into space, without fixing any limit. But in actual practice the section does limit such rights by saying that the owner cannot interfere with others using his space if the owner has no interest to prevent such user. When Germany adopted this section of the Code, it thereby declared itself sovereign in space to an indefinite height so as to protect and regulate the conflicting recognized interests of the landowners and others in usable space.¹⁰²

⁹⁹Wilhelm Werenberg, "Ueber die Collision der Rechte verschiedener Grundstückseigentümer," *Jherings Jahrbücher für die Dogmatik des bürgerlichen Rechts*, Vol. 6, 1863, pp. 20-21; Bonfante, *op. cit.* p. 221; Pampaloni, *op. cit.* pp. 39-41; Trentin, *op. cit.* p. 83.

¹⁰⁰von Jhering, *op. cit.* p. 85. Pampaloni, *op. cit.* pp. 41-43; Trentin, *op. cit.* p. 83.

¹⁰¹Bonfante, *op. cit.* p. 225.

¹⁰²Section 905 of the German Civil Code should be considered in connection with Article 667 of the Swiss Civil Code adopted in 1907 in the following language: "*Das Eigentum an Grund und Boden erstreckt sich nach oben und unten auf den Luftraum und das Erdreich, soweit für die Ausübung des Eigentums ein Interesse besteht.*" Which may be translated: "Ownership of land extends upwards into the airspace and downwards into the earth, provided there is an interest in the utilization of the property."

As early as 1862 the law of the Canton of Grisons had provided that the ownership of land extends above and below the land up to a height and to a depth where such ownership can be exercised usefully. This principle was adopted by Article 667 of the Swiss Code of 1907.

Both the German Code and the Swiss Code necessarily raised in practice the difficulty of determining the height at which the owner of lands below has that character of interest in the space above which authorizes him to prevent or interfere with the use of such space by others.

See on this subject: Armando Koch, "Le Droit de l'air d'après le nouveau code civil Suisse," *Revue juridique internationale de la locomotion aérienne*, Vol. 2, 1911, pp. 233-235; André Henry-Coüannier, *op. cit.* Sec. 41, pp. 117-118.

XV

The principle of Roman Law as to exclusive private rights in space continued to influence the growth of the common law of Great Britain, notwithstanding the development of the art of human flight. The views of Coke and Blackstone, with their emphasis on the rights of the landowner in usable space above, repeatedly reappeared. The maxim *Cujus est solum* was used as evidence of a well understood legal presumption. Decisions of the courts and writings of able jurists during the 19th century made it increasingly evident that British law recognized, regulated, and, if necessary, protected certain exclusive rights of the landowner in superjacent space. Thus British sovereignty was continuously asserted in the usable space above its national surface territories. Whether these private rights were those of ownership, or merely rights of protection in the full use of the lands in question, is not material. The space where these rights were held to exist was treated as part of the national sphere of sovereign action just as it had been since Roman times.

While Lord Ellenborough is quoted as having held in 1815 in *Pickering v. Rudd*¹⁰³ that he did not "think it is a trespass to interfere with the column of air superincumbent on the close", it is evident from an examination of both reports of the case that he was holding nothing more than that the technical action of trespass would not lie—not that the owner of the land had no rights in the airspace affected by defendant's overhanging board. In fact both Campbell's and Starkie's reports make it clear that the learned judge would have given damages to the plaintiff in an "action on the case" if, as Starkie's report says "you could prove any inconvenience to have been sustained."

In *Foy v. Prentice*¹⁰⁴ decided in 1845, plaintiff recovered in an "action on the case" for nuisance resulting from a cornice of defendant's building overhanging plaintiff's garden, even though actual harm was not shown. Coltman, J., held that "the mere fact of defendant's cornice overhanging the plaintiff's land may be considered a nuisance, importing a damage which the law can estimate." In that case the maxim *Cujus est solum* is referred to as a presumption of law, though not applicable in all cases.

In *Electric Telegraph Co. v. Overseers of Salford*,¹⁰⁵ decided in 1855, dealing with the question as to whether a company owning wires was taxable as occupying land, all four judges concerned in deciding that such occupation existed. Baron Martin, for example, cited Coke and the maxim, then held that the wires occupied "that which the law calls land."

In *Ellis v. Loftus Iron Co.*,¹⁰⁶ it was held that trespass existed when defendant's horse kicked and bit plaintiff's mare through a wire fence, the mare being

¹⁰³*Pickering v. Rudd*, (1815), 4 Camp. 219, 1 Stark. 46.

¹⁰⁴*Foy v. Prentice*, (1845), 1 C.B. 828, 36 Digest 162.

¹⁰⁵*Electric Telegraph Co. v. Overseers of Salford* (1855), 11 Ex. 181, 156 Eng. Rep. 795.

¹⁰⁶*Ellis v. Loftus Iron Company* (1874), L.R. 10 C.P. 10.

in plaintiff's field. The fact that some portion of the horse's body was over the boundary was held a trespass without proof of negligence even though plaintiff's land was not touched. Denman, J., referred to the maxim *Cujus est solum* as a "technical rule", but held that on the authorities there was no escape from holding that a trespass existed.

In *Wandsworth Board of Works v. United Telephone Co.*,¹⁰⁷ decided in 1884, Bowen, L.J., said: "I should be extremely loath myself to suggest, or to acquiesce in any suggestion, that an owner of land had not the right to object to anybody putting anything over his land at any height in the sky." Fry, L.J., indicated that he entertained "no doubt that an ordinary proprietor of land can cut and remove a wire placed at any height above his freeroid," though as he added "the point is not necessary for decision."

To the same effect are the leading text writers. Pollock, in the first (1886) edition of his now classic work on *The Law of Torts*, quoted with approval the statement that "every invasion of private property, be it ever so minute, is a trespass."¹⁰⁸ In a note he added that "property" here "as constantly in our books, really means possession or right of possession." After recalling the fact that Lord Ellenborough in *Pickering v. Rudd*, had thought it not a trespass "to interfere with the column of air superincumbent on the close", Pollock noted that fifty years later Lord Blackburn had inclined to think differently,¹⁰⁹ commenting "and his opinion seems the better." For, said Pollock, "it does not seem possible on the principles of the common law to assign any reason why an entry at any height above the surface should not also be trespass." In later editions, Pollock somewhat qualified this position by adding "unless indeed it can be said that the scope of possible trespass is limited by that of possible effective possession, which might be the most reasonable rule."¹¹⁰

Salmond in the first (1907) edition of his work on *The Law of Torts*, discussing trespass, says: "It is commonly said that the ownership and possession of land bring with them the ownership and possession of the column of space above the surface *ad infinitum*. *Cujus est solum ejus est usque ad coelum*. This is doubtless true to this extent, that the owner of land has the right to use for his own purposes, to the exclusion of all other persons, the space above *ad infinitum*." In the following paragraph he added that ". . . a mere entry into the airspace above the land is not an actionable wrong unless it causes some harm, danger, or inconvenience to the occupier of the surface," in which case "there is a cause of action in the nature of a nuisance."¹¹¹

Pollock and Salmond concurred in the existence of exclusive private rights held by the landowner in superjacent space. They differed only as to the kind

¹⁰⁷*Wandsworth Bd. of Works v. Unitel Co.* (1884), 13 I.B.D. 104.

¹⁰⁸Pollock, *The Law of Torts*, p. 280, citing *Entick v. Carrington*, 19 St. Tr. 1066.

¹⁰⁹*Kenyon v. Hart* (1865), 6 B. & S. 249, 34 L.J.M.C. 87.

¹¹⁰Pollock, *The Law of Torts* (8th ed.) p. 348.

¹¹¹Salmond, *The Law of Torts*, Stevens and Haynes, London, 1907, p. 163-164.

of action to be brought for unauthorized entry into such space and as to whether "harm, danger, or inconvenience" must be proved.

Such are some of the representative British cases and authorities from 1783, when the art of human flight was discovered, to 1919 when the Paris convention was signed. They indicate with striking consistence the existence of a general rule as to the rights of the landowner in superjacent space. Whether these exclusive rights are technically ownership, or a mere right to enjoy the surface to the fullest extent, is not material. Nor is it important by what type of court action such rights could be enforced. Similar questions might have been raised before the Roman praetor. The important thing is that the common law of Great Britain, by acknowledging these private rights, continuously asserted full national sovereignty over usable space above surface territories. Whether or not it be correct to say that the maxim *Cujus est solum* has in itself "no authority in English law",¹¹² the fact remains that the sturdy principles of the Roman law continued to dictate the basic tenets of private property rights in space, and evidenced, as they had from the days of the Twelve Tables, the fact that the State held and exercised sovereign rights in such space to create, regulate and protect exclusive private rights. It was this same sovereign power which Great Britain later exercised in adopting the Air Navigation Act, 1920, for the purpose, among other things of legislatively adjusting rights in usable space between the owner of lands below and the operator of an aircraft.¹¹³

¹¹²McNair, *op. cit.* p. 33. In summarizing his own considered views as to private rights in space under the common law, McNair stated two theories: "(i) that *prima facie* a surface-owner has ownership of the fixed contents of the airspace and the exclusive right of filling the airspace with contents, and alternatively, (ii) the same as (i) with the addition of ownership of the airspace within the limits of an 'area of ordinary user' surrounding and attendant upon the surface and any erections upon it." As to (ii) McNair added that "it is agreeable that a surface owner automatically owns that limited portion of the airspace which is necessary for the enjoyment of the ownership of the surface . . ." He personally preferred the first solution as he doubted whether ownership of space could be possible. It is suggested by the present author that both theories evidence the existence of exclusive private legal rights in space, and that either might have been accepted by the compilers of the Justinian *Corpus Juris Civilis*.

¹¹³Air Navigation Act, 1920, 10 & 11 Geo V, c. 80, § 9(1). This section includes the following opening paragraph:

"No action shall lie in respect of trespass or in respect of nuisance, by reason only of the flight of aircraft over any property at a height above the ground, which, having regard to wind, weather, and all the circumstances of the case is reasonable, or the ordinary incidents of such flight, so long as the provisions of this Act and any Order made thereunder and of the Convention are duly complied with; but where material damage or loss is caused by an aircraft in flight, taking off, or landing or by any person in any such aircraft, or by any article falling from any such aircraft, to any person or property on land or water, damages shall be recoverable from the owner of the aircraft in respect of such damage or loss, without proof of negligence or intention or other cause of action,

XVI

When English settlers moved into North America, they carried with them the accepted principles of the common law. These included the juridical concept that ownership of land included rights in superjacent space.

This is evidenced in the United States by a continuous chain of authoritative comments and court decisions. The right of the landowner to build upward was not challenged, nor his right to be protected against fixed occupancy by another of any part of the space above his soil. The existence of these sound tenets of Roman law, inherited through the British common law, was not challenged. It was only after aviation became an important transport activity, thus creating new social problems, that the extent and character, though not the existence, of the surface-owner's rights were carefully examined and clarified.

Chancellor Kent of New York, in his much cited *Commentaries on American Law*, first published in 1826 and 1830, accepted as valid the statements of Coke and Blackstone as to the ownership of land carrying with it certain rights of the surface owner in space above.¹¹⁴

This general position was affirmed in numerous cases in state courts of last resort, including the following often cited:

a) *Lyman v. Hall*: Overhanging branches constitute a legal nuisance for "land comprehends everything in a direct line above it."¹¹⁵

b) *Smith v. Smith*: Eaves of defendant's barn overhanging plaintiff's property is trespass.¹¹⁶

c) *Hannabalsen v. Sessions*: Reaching an arm across a boundary is trespass, for "it is one of the oldest rules of property that the title of the owner of the soil extends, not only downward to the center of the earth, but upward 'usque ad coelum . . .'"¹¹⁷

d) *Butler v. Frontier Telephone Co.*: Stringing electric wires above plaintiff's property thirty feet above ground authorizes an action of ejectment: "The law regards the empty space as if it were a solid, inseparable from the soil, and protects it from hostile occupation accordingly," for ". . . within reasonable limitations land includes also the space above and the part

as though the same had been caused by his wilful act, neglect or default, except where the damage or loss was caused by or contributed to by the negligence of the person by whom the same was suffered . . ."

¹¹⁴Kent, *Commentaries on American Law*, Vol. III, 1892, p. 402: "Corporal hereditaments are confined to *land*, which, according to Lord Coke, includes not only the ground or soil, but everything which is attached to the earth, whether by the course of nature, as trees, herbage, and water, or by the hand of man, as houses and other buildings; and which has an indefinite extent, upwards as well as downwards, so as to include everything terrestrial, under or over it . . ."

¹¹⁵*Lyman v. Hall*, 11 Conn. 177 (1836).

¹¹⁶*Smith v. Smith*, 110 Mass. 302 (1872).

¹¹⁷*Hannabalsen v. Sessions*, 116 Iowa 457, 90 N.W. 93 (1902).

beneath . . . 'usque ad coelum' is the upper boundary, and, while this may not be taken too literally, there is no limitation within the bounds of any structure yet erected by man."¹¹⁸

United States official delegates took part in drafting, and later signed, the Paris Convention of 1919. They insisted on the rule that each nation is sovereign in the airspace over its surface territories.¹¹⁹ The fact that the United States did not ratify the Convention was not caused by the adoption of this rule. The several states of the Union, as evidenced by the cases just cited, and many others, had continuously asserted their internal sovereignty over the airspace by the regulation and protection of exclusive rights of the surface owner in space above, thus declaring such airspace to be part of the territory of the state in question. As all the territory of each state is part also of the territory of the United States as a member of the family of nations, it necessarily followed that the airspace over each state was part of the national territory of the United States for purposes of external sovereignty in international law.

Decisions of both state and federal courts in the United States after 1919 reaffirmed the basic rights of the surface owner in space, while at the same time clarifying the extent of these rights and adjusting them against the public requirements for the development of aviation.

In *Portsmouth Harbor Land and Hotel Company v. United States*,¹²⁰ the Supreme Court of the United States, speaking through the great authority of Mr. Justice Holmes, held that the United States was guilty of "taking" the property of the plaintiff by firing large guns in such manner that the projectiles passed through the airspace over plaintiff's lands — a clear acceptance of the existence of property rights in space protected by the law of the territorial sovereign.

Twenty-four years later the Supreme Court in the presently controlling case of *United States v. Causby*¹²¹ affirmed, clarified, and limited horizontally

¹¹⁸*Butler v. Frontier Telephone Co.*, 186 N.Y. 486, 79 N.E. 716 (1906).

¹¹⁹See the author's article "United States Participation in drafting Paris Convention, 1919", Vol. 18, No. 3, *Journal Air Law and Commerce*, p. 266.

¹²⁰*Portsmouth Harbor Land and Hotel Co. v. United States*, 260 U.S. 327 (1922).

¹²¹*United States v. Causby*, 328 U.S. 256 (1946).

Between the decisions of the U.S. Supreme Court in the *Portsmouth Co.* and *Causby* cases, a number of other cases were decided by State Supreme Courts and U.S. Circuit Courts of Appeal illustrating previously developed common law rights of the surface-owner. The most important are the following:

Smith v. New England Aircraft Co., 270 Mass. 511, 170 N.E. 385, 1930 U.S. Av. R. 1, 1 Avi. 197 (1930). Low altitude flights held technically a trespass though injunction denied under facts in case. As to airspace rights, court said: "The bald question in the case at bar is whether aircraft, in order to reach or leave an airport, may of right fly so low as 100 feet over brush and woodland not otherwise utilized, against the protest of the owner . . . There are numerous cases holding that invasion of the airspace above the land without contact with its surface constitutes trespass . . ." And later: "The com-

the surface-owner's space rights. In 1926 by the adoption of the Air Commerce Act, the United States had legislatively declared its national airspace sovereignty, and had reasserted the same position in the Civil Aeronautics Act of 1938. These acts, as the Court pointed out in the *Causby* case, granted citizens of the United States "a public right of freedom of transit in air commerce through the navigable airspace of the United States", defined as "airspace above the minimum safe altitudes of flight prescribed by the Civil Aeronautics Authority", and definitely provided that "such navigable airspace shall be subject to a public right of freedom of interstate and foreign air navigation." The court found that passage of United States military aircraft at levels below the administratively fixed safe altitudes of flight across the Causby lands were equivalent to a taking of his property under the facts of the case. In doing so, the court reaffirmed the continued existence of common law airspace rights of the surface owner in the areas up to the minimum safe altitudes of flight. The opinion of Mr. Justice Douglas says in part:

We have said that the airspace is a public highway. Yet it is obvious that if the landowner is to have full enjoyment of the land, he must have exclusive control of the immediate reaches of the enveloping atmosphere. Otherwise buildings could not be erected, trees could not be planted, and even fences could not be run. The principle is recognized when the law gives a remedy in case overhanging structures are erected on adjoining land. The landowner owns at least as much of the space above the ground as he can occupy or use in connection with the land. The fact that he does not occupy it in a physical sense — by the erection of buildings and the like — is not material. As we have said, the flight of airplane, which skim the surface but do not touch it, is as much an appropriation of the use of the land as a more conventional entry upon it. We would not doubt that if the United States erected an

bination of all these factors [low flights, noise, etc.] seems to us, under settled principles of law . . . to constitute trespass to the land of the plaintiff" so far as concerned flights as low as 100 feet.

Sweetland v. Curtis Corp., 55 F.2d 201, 1932 U.S. Av. R. 1, 1 Avi. 315 (1932). Held that surface-owner "has a dominant right of occupancy [in airspace above his land] for purposes incident to his use and enjoyment of the surface, and there may be such a continuous and permanent use of the lower stratum which he may reasonably expect to occupy himself as to impose a servitude upon his use and enjoyment of the surface" (citing the *Portsmouth Co.* case, *supra*). And again: "As to the upperstratum which he may not reasonably expect to occupy, he has no right . . . except to prevent the use of it by others to the extent of an unreasonable interference with his complete enjoyment of the surface."

Thrasher v. City of Atlanta, 178 Ga. 514, 173 S.E. 817, 1934 U.S. Av. R. 166, 1 Avi. 518 (1934). Held that "the legal title [to airspace], can hardly extend above an altitude representing the reasonable possibility of man's occupation and dominion, although as respects the realm beyond this the owner of the land may complain of any use tending to diminish the free enjoyment of the soil beneath;" and again that "the occupant of the soil is entitled to be free from danger or annoyance by any use of the superincumbent space, and for any infringement of this right he may apply to the law for appropriate redress or relief."

Hinman v. Pacific Air Transport Corp., 84 F.2d 755, 1936 U.S. Av. R. 1, 1 Avi. 640 (1936). Held that the *Cujus est solum* maxim literally construed was not and had

elevated railway over respondents' land at the precise altitude where its planes now fly, there would be a partial taking, even though none of the supports of the structure rested on the land. The reason is that there would be an intrusion so immediate and direct as to subtract from the owner's full enjoyment of the property and to limit his exploitation of it. While the owner does not in any physical manner occupy that stratum of airspace or make use of it in the conventional sense, he does use it in somewhat the same sense that space left between buildings for the purpose of light and air is used. The superadjacent airspace at this low altitude is so close to the land that continuous invasions of it affect the use of the surface of the land itself. We think that the landowner, as an incident to his ownership, has a claim to it and that invasions of it are in the same category as invasions of the surface.

In this case, as in *Portsmouth Co. v. United States*, supra, the damages were not merely consequential. They were the produce of a direct invasion of respondents' domain.²

In an earlier portion of the opinion the court had said:

It is ancient doctrine that at common law ownership of the land extended to the periphery of the universe — *Cujus est solum ejus est usque ad coelum* (citing Coke, Blackstone and Kent). But that doctrine has no place in the modern world.

Whether this arbitrary construction of the maxim can be accepted as a correct statement of the common law is more than open to question. But this is not material here. The primary importance of the whole decision is its reaffirmance that certain exclusive rights of the surface owner in usable superjacent space are protected by the territorial sovereign power of the State, even though these rights are held to have been horizontally limited by the legislative acts discussed. The decision clearly establishes the fact that the airspace over the surface territories of the United States was considered as territory in which the law of the sovereign could be and was enforced long before the signature of the Paris Convention by the United States, or its declaration of national sovereignty in the Air Commerce Act of 1926. The complex question of whether the airspace is both state and federal territory under United States constitutional provisions, or solely federal, is not in point.

XVII

In Canada the position is generally similar. In 1930 the Supreme Court of Canada was asked certain questions by the Governor General in Council as to the respective legislative powers of the Parliament and of the legislatures of

never been the law; that the formula "from the center of the earth to the sky" was "never taken literally but was a figurative phrase to express the full and complete ownership of land and the right to whatever superjacent airspace was necessary or convenient to the enjoyment of the land;" and later that "when it is said that man owns, or may own to the heavens, that merely means that no one can acquire a right to the space above him that will limit him in whatever use he can make of it as a part of his enjoyment of the land."

the provinces in relation to the regulation of control of Aeronautics.¹²² In the separate opinion of Newcombe, J., the following statement appears as part of his justification for finding that the provinces, not the Dominion Parliament, controlled the right of flight:

I would reject the argument urged on behalf of the Dominion that the subject of either of these questions is 'navigation and shipping', within the 10th enumeration of s. 91 of the British North America Act, 1867, I see no evidence of any Parliamentary intention that this was ever intended.

'The earth hath in law a great extent upwards, not only of water, as hath been said, but of ayre and all other things even up to heaven; for *cujus est solum ejus est usque ad coelum*, as in holden 14 H.8. fo. 12, 22 Hen. 6. 59. 10 E. 4. 14. *Registrum origin.* and in other bookes.'

These are the words of Coke's venerable Commentary upon Littleton (4a.), and they express, as I have been taught to believe, the common law of England, which applies in the English provinces of Canada. In the province of Quebec, the law is not materially different, for, by art. 414 of the Civil Code, it is declared that

'ownership of the soil carries with it ownership of what is above and what is below it.'

The principle is thus established, and the courts have no authority, so far as I can perceive, to explain and qualify it so as to admit of the introduction of a public right of way for the use of flying machines consequent upon the demonstrations in recent times of the practicability of artificial flight. The appropriate legislature may, of course, provide for airways as it has habitually done for roads and highways, notwithstanding the rights of the proprietors; but the project is legislative, not judicial.

He added later that "the right of way exercised within a province by a flying machine must, in some manner, be derived from or against the owners of the property traversed . . ."; and that if it were desired to confer immunity in the provinces of Canada in respect of trespass or nuisance by reason of flight at reasonable height as had been done in Great Britain by the Air Navigation Act, 1920 (discussed above), resort would lie *prima facie* to the legislature of the provinces.¹²³ The existence of private rights in space held subject to legislative territorial regulation was not questioned — the only problem being whether the Dominion or the provinces could exercise this control.

The judgment of the Supreme Court of Canada was reversed in 1932 on appeal to the Privy Council.¹²⁴ In the arguments for the Attorney-General of Canada it was urged that the "*maxim Cujus est solum ejus est usque ad coelum* does not apply so as to prevent aerial navigation from being a public

¹²²Reference *re Legislative Powers as to Regulation and Control of Aeronautics in Canada*, [1930] S.C.R. 663.

¹²³*Id.* at 701, 702.

¹²⁴*In re the Regulation and Control of Aeronautics in Canada*, [1932] A.C. 54.

right; flying over land is not a trespass to any proprietary right: *Pickering v. Rudd*; *Clifton v. Bury*; *Foy v. Prentice*.¹²⁵

Pickering v. Rudd and *Foy v. Prentice* are discussed in Section XV *supra* of this paper. In *Clifton v. Bury* the plaintiff asked an injunction and damages for shooting across his lands. Both were granted. Hawkins, J., held that plaintiff had "a legal grievance sufficient to enable him to maintain an action", though the shooting was not considered the basis for a technical action of trespass. These cases all admit the existence of exclusive rights of the surface-owner in superjacent space, even though such rights are not that full ownership of the airspace which would warrant the plaintiff to sue in trespass for entry above his lands. In reversing the Supreme Court of Canada, the Privy Council did not discuss this very technical point. The decision of the Privy Council holding that the Dominion had full control of aeronautics was based on the broad grounds that Canada must have national control of aeronautics in order to implement its obligations under the Paris Convention of 1919 "Relating to the Regulation of Aerial Navigation", as well as on the ground that "aerial navigation is a class of subject which has attained such dimensions as to affect the body politic of the Dominion." So far as preexisting surface-owners' rights were affected, this meant nothing more than that the Dominion, not the provinces, had legislative power to regulate these airspace rights so as to authorize and regulate air navigation. The existence of private rights in space recognized and protected by law was not questioned.

XVIII

This somewhat brief and general historic survey would appear to demonstrate the correctness of the statement that sovereign states have since Roman times created, recognized, regulated and protected certain exclusive private rights of the surface-owner in usable space above his lands. Accepting as true the doctrine that such acts of the State can be exercised only by virtue of its rights of sovereignty within its national territory, it follows that States claimed, held, and in fact exercised sovereignty in the airspace above their national territories long prior to the age of flight, and that the recognition of an existing territorial airspace status by the Paris Convention of 1919 was well founded in law and history.

¹²⁵*Id.* at 57; *Pickering v. Rudd* (1815), 4 Camp. 219; *Clifton v. Bury* (1887), 4 T.L.R. 8; *Foy v. Prentice* (1845), 1 C.B. 828.