

# Pioneers of Space Law

*Edited by*

Stephan Hobe



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## Chapter V **Vladimír Mandl** (20.3.1899 – 8.1.1941)

Vladimír Kopal\* and Mahulena Hofmann\*\*

### A. Introduction

In a keynote address on “A Concise History of Space Law” by Stephen E. Doyle (USA), which was delivered during the 53rd Colloquium of the International Institute of Space Law (IISL) at the 61st International Astronautical Congress held in Prague, 2010, the speaker also mentioned a Czech lawyer, Professor Vladimír Mandl, as author of the world’s first comprehensive survey of space law.<sup>1</sup> After that address, V. Kopal made an intervention on the life and work of Vladimír Mandl.<sup>2</sup> Stephan Hobe dedicated a substantive attention to Mandl’s work in his paper at the same session.<sup>3</sup>

Already in 1968, V. Kopal presented a report on the life and work of Vladimír Mandl at the Second History Symposium of the International Academy of Astronautics (IAA), which was held in conjunction with the XIX

\* Professor of International Law, Faculty of Law, West Bohemian University, Plzeň (Pilsen), Czech Republic. Former Chief of the UN Outer Space Affairs Division in New York and later on Chairman of the Legal Subcommittee, United Nations Committee on the Peaceful Uses of Outer Space (COPUOS).

\*\* Professor of Law, SES Chair in Satellite Communications and Media Law, Faculty of Law, Economics and Finance in the University of Luxembourg, Luxembourg.

1 Proceedings of the International Institute of Space Law, 2010. Published and distributed by the American Institute of Aeronautics and Astronautics, 2011, p. 4.

2 *Id.* at 18 *et seq.*

3 *Id.* at 21 *et seq.*

International Astronautical Congress in New York.<sup>4</sup> He then occasionally referred to Mandl's fundamental role in the evolution of the doctrine of space law in some other papers and lectures.<sup>5</sup>

The contribution to this book is a revised and completed version of these papers, based on further research and offering a wider image of the life and work of Professor Vladimír Mandl.

## B. Mandl's Studies, Early Publications and Doctorate

Vladimír Mandl was born on March 20, 1899 as son of Dr. Matouš Mandl, an estimable attorney-at-law in Plzeň (Pilsen), an industrial city, which was at that time a part of the Austrian-Hungarian Empire. After the defeat and split of that monarchy in World War I, Pilsen became one of the major cities of the newly born Czechoslovakia, now located in the present Czech Republic.

Following his studies at the Pilsener high school, Vladimír Mandl entered the Czech Faculty of Law, Charles University of Prague, where he studied for eight semesters. In particular, he became a member of the seminar on civil law procedure, which was guided by an outstanding scholar, Professor Václav Hora. After his graduation to Doctor of Law on November 24, 1921, Mandl shortly practiced at a district court in Prague and then for some time in his father's office, but on March 1, 1927, having successfully passed the advocate examinations, he opened his own office of attorney-at-law in Pilsen. Thus, though he was originally thinking of engineering studies and profession, he decided to follow his father's legal career.

Mandl's original civil law orientation led him to write first papers in that legal field. In 1925 Mandl contributed to the first Congress of the Czechoslovak Lawyers by a report on problems of evidence and in 1926 he completed a monograph on the Czechoslovak civil law relating to marriage.

4 Vladimír Kopal, *Vladimír Mandl: Founding Writer on Space*, which was published in: *First Steps toward Space*, edited by Frederic C. Durant III and George S. James, Smithsonian Institution Press, City of Washington, 1974, p. 87 *et seq.*

5 See e.g. *Evolution of the Doctrine of Space Law*, in: *Space Law, Development and Scope*, edited by N. Jasentuliyana, Praeger, Westport, Connecticut, London, 1992, p. 17 *et seq.*, especially pp. 18-19.

Nevertheless, Mandl's original technical vocation turned his interest soon to legal problems created by industrial and technological developments of the 1920s and 1930s. At first, he published a series of articles, and later on in 1929 a monograph, on legal aspects of motor vehicles.<sup>6</sup> But it was quite natural that his attention was also drawn to legal problems of aviation. His studies in the new discipline resulted in a monograph on air law, which was published by the Pilsener Aeroclub in 1928.<sup>7</sup> That work was in fact the first treatise on this topic written in the Czech language. After a historical introduction, the author dealt with the Czechoslovak air regulation accomplished by the Law on Civil Aviation in 1925. In the second part, he considered some special problems of air law, such as liability arising from international air transport contracts, conflicts of law concerning aviation, customs and insurance against damage caused by aircraft. The final chapter dealt with aerial warfare.

Another outcome of Mandl's law studies was printed in Germany, under the title "Das Tschechoslowakische Luftverkehrs-gesetz" (Czechoslovak Law of Aviation) and a study on the 1919 Paris Convention in Czech.<sup>8</sup> Later on, Mandl also started to publish some of his air law studies in other countries.<sup>9</sup> And his literary involvement in the field of aviation and air law was followed by a practical step: Following the examples of some early air law pioneers, who acquired balloon or pilot licenses, Mandl also obtained his pilot license in 1929.

### C. Mandl's Postgraduate Studies and Habilitation

Dr. Vladimír Mandl submitted his monographical study on air law to the Czech Technical University in Prague, one of the oldest institutions of this kind in Central Europe, as a habilitation thesis in order to become a docent at its Faculty of Mechanical and Electrical Engineering. Documents

- 6 VLADIMÍR MANDL, AUTOMOBILOVÝ ZÁKON Z 9. SRPNA 1908 A JEHO REFORMA (The Automobile Act of August 9, 1908 and its Reform), Praha 1929.
- 7 VLADIMÍR MANDL, LETECKÉ PRÁVO (Air Law), Plzeň, 1928.
- 8 VLADIMÍR MANDL, MEZINÁRODNÍ ÚMLUVA O ÚPRAVĚ LETECTVÍ ZE DNE 13. ŘÍJNA 1910 (International Convention on the Regulation of Aviation of October 13, 1919), Praha, 1932.
- 9 E.g. Vladimír Mandl, *Le Parachute*, in: La revue générale de droit aérien, Paris, Nos 2, 3, 4/1935.

deposited in the Archives of the Universities of Prague give evidence that Mandl fulfilled all requirements and his knowledge and scholarly work were highly evaluated. Therefore, he received the unanimous approval of the Accreditation Commission. On April 30, 1930, he also delivered a usual test lecture before the Board of Professors of the Faculty on “Liability of Contractors for Damage”, a subject that was important at that time due to the conclusion of the 1929 Warsaw Convention on Unification of Certain Rules for the Liability of International Air Transport Operators. The Board of Professors of the Faculty decided by a great majority to grant him a *venia docendi* (“Private docent” in Central European terminology) for the subject matter “Law of Industrial Enterprises” and this decision was then confirmed by the Czechoslovak Minister of Education on September 30, 1932.<sup>10</sup>

In the meantime, Vladimír Mandl also passed his postgraduate studies at the Faculty of Law of the Friedrich Alexander University of Erlangen in Germany and there he successfully defended a thesis on the civil law structure of the right of indemnification. In this way, he continued and extended his original background in civil law. Mandl’s work was approved by the Faculty on June 20, 1931 and its author was granted the doctorate of the Erlangen University. His thesis was printed in Germany the same year.<sup>11</sup>

Mandl’s work dealt with the absolute liability in civil law and may be assessed today also in the light of the subsequent UN Convention on International Liability for Damage Caused by Space Objects of 1972. The first chapter of Mandl’s thesis was devoted to the basis of civil right relations – the expression of will. The chapter with a title “The Will to Damage” (“Der Schadenswillen”) concentrated on the liability without fault. The basis of this form of liability is a violation of “protective” legal norms aimed at the most dangerous human activities such as operating of industrial facilities or driving transport vehicles.

As in his further works, Mandl approached legal problems from the point of morality. He thought that in comparison with other individuals, the disposal of those dangerous objects puts their owners in a special, preferential position. This specific advantage has to be compensated by a strict form

10 Decree of the Minister of Education No. 892 12/31-IV/3 of September 30, 1932.

11 VLADIMÍR MANDL, *ZIVILISTISCHER AUFBAU DES SCHADENERSATZRECHTES*, Verlag von M. and H. Marcus, Breslau, 1932. This study includes Mandl’s own *curriculum vitae*.



of protection of the public, which is not connected with the motives of fault of the owner but is based solely on the fact of violation of legal norms: “Each invocation of legal remedy... based on the extraordinary burden for the general public results in a liability title of the damaged.”<sup>12</sup> Mandl underlined this conclusion by drawing a comparison to the liability based on penal law and concluded that civil law did not recognize any good or bad will, but only one will. The ideal, ethical aspects of the behavior of the subject of dangerous activities must not lead to any material or economic disadvantage of the damaged, but solely to their full compensation.

#### D. Mandl’s Orientation to Astronautics and Space Law

By that time, Mandl also started to attach a growing importance to a new possible field of human endeavors – the rise and development of activities in outer space. Influenced by the publications of the contemporary thinkers about and experimentalists with rockets as means for access to space, Mandl accomplished two works.

The first one was a booklet on the problem of interstellar transport, which was published in order to address a wider circle of readers in his own country.<sup>13</sup> His booklet opened with a brief survey of developments in astronautics, in which he described the work of Konstantin Tsiolkovski, Robert H. Goddard, Franz von Hoeffft, Hermann Oberth and others. In the second part, he explained the basic principles of rocketry. The publication also included Mandl’s own design of a high altitude rocket for which he applied and was granted a patent.<sup>14</sup>

The other was a monographical study on legal problems of space activities that he published in German in order to present his legal ideas and

12 *Id.* at 57.

13 VLADIMÍR MANDL, *PROBLÉM MEZIHVĚZDNĚ DOPRAVY* (The Problem of Interstellar Transport), Praha, 1932.

14 Patent No 52236, class 46 d, granted in Czechoslovakia on September 25, 1933. Mandl also described the design of his rocket in a brochure *Die RAKETE FÜR HÖHENFORSCHUNG* (A Rocket for High Altitude Investigation), which was published in Germany by Hachmeister und Thal, 1934, upon request of the then *Gesellschaft für fortschrittliche Verkehrstechnik* (Association for Progressive Traffic Technics).

conclusions to a wider circle of specialists in Europe. Another reason for it was the fact that he could not find a publisher for such a legal study in Czechoslovakia. But neither was it easy to find any publisher in Germany or elsewhere. Finally, he found a publishing house which, however, agreed only to print Mandl's study at his own cost and to sell it. About 25 copies of the few hundred printed pieces were really sold.<sup>15</sup>

Yet Vladimír Mandl's monographical study on the law of outer space<sup>16</sup> should be assessed as his most significant work, by which its author entered the history of astronautics and particularly that of space law. In this concise study having only 48 pages, he developed a lot of thoughts on the legal regulation of future space activities, some of which have not lost their relevance up to now and are reflected in the present legal regime of outer space. In the framework of this chapter, it is not possible to refer to all of Mandl's ideas and visions. But attention must be drawn at least to the most important ones among them.

First of all, it is his fundamental concept of the law of outer space as an independent legal branch based on specific means of space flights and governed by principles different from those of the law of the sea or the law of the air. Although, Mandl did not underestimate the relevance of concepts of other legal regulations, particularly of air law, for analogies in special cases, he stressed the need for a specific regulation of legal problems of astronautics. The real development of space flights since 1957 and the birth and growth of their legal regulation confirmed the validity of Mandl's concept of space law. From this point of view, he then considered in the first part of his study, en-

15 In Czechoslovakia, one of these copies was purchased by the late Dr. Ing. Rudolf Pešek who was since his youth an enthusiast for aviation and rocketry. After World War II he became Professor of Fluid Mechanics at the Czech Technical University of Prague and in 1960, he was appointed one of the Founding Members of the International Academy of Astronautics (IAA) and Chairman of its Section of Engineering Sciences. When writing the above mentioned first paper on Mandl's life and work, V. Kopal used Professor Pešek's copy of Mandl's study.

16 VLADIMÍR MANDL, RECHTSANWALT IN PILSEN, DAS WELTRAUMRECHT, EIN PROBLEM DER RAUMFAHRT, (The Space Law: A Problem of Space Flights. By Vladimír Mandl, Attorney-at Law in Pilsen), 1932, J. Bensheimer, Mannheim-Berlin-Leipzig.

titled “The Present”, selected problems of a civil, criminal and international law nature concerning outer space.

Not less interesting was and still is the second part of the study called “The Future”. It is not science-fiction, but a number of serious prognoses, many of which became a reality in our age. For example, Mandl rejected the then dominant idea of sovereignty in space without limits and affirmed that sovereignty of States applied only to the atmospheric space above their territory. Beyond the territorial spaces, “there begins an area, which does not have any relation to our globe and therefore, also not to any individual part of the Earth’s surface, which is no longer Earth appurtenant and is therefore, free of any terrestrial State power, *coelum liberum*. In this area, the traffic of spaceships is completely free.”<sup>17</sup>

It is evident that this conclusion of Mandl was inspired by Hugo Grotius and his concept of the freedom of the high seas as defended in his famous “*Mare liberum*” in the beginning of the 17th century.<sup>18</sup> Thirty years after the publication of Mandl’s space law study, the UN General Assembly unanimously declared in its Resolution 1721 A/XVI of December 20, 1961 such a principle as the starting point of the space legislation by stating: “Outer space and celestial bodies are free for exploration and use by all States in conformity with international law and are not subject to national appropriation.”<sup>19</sup> And only a few years later, this fundamental principle was further developed and made legally binding in Articles I-III of the Outer Space Treaty of January 27, 1967.<sup>20</sup>

In his study Mandl discussed in greater detail many space law notions and questions, such as the nationality of spaceships, the construction of ports in outer space, economic exploration of space resources, effects of space activities on culture and other topics. He also paid attention to the use of spaceships in war, but he expected that “spaceships for a time of war will only be

17 *Id.* at 33.

18 Hugonis Grotii, *Mare Liberum sive de lure quod Batavis Competit ad Indicana Commercium*, Dissertatio, 1608, in: J.B. Scott, *The Freedom of the Seas*, New York, 1916, especially Chapter V.

19 United Nations Treaties and Principles on Outer Space, United Nations, New York, 2008, p. 61.

20 *Id.* at 4. 21.

used as auxiliary means to the land, sea or air warfares without forming an independent weapon system”.<sup>21</sup> Therefore, he did not discuss the possibility of “star wars”.

The concluding part of Mandl’s considerations was preceded by his prediction of a new surprising progress in physics, chemistry and engineering, which would correspond to a similar epoch of the 19th century – in fact a vision of the scientific and technical revolution of our times.<sup>22</sup> Moreover, as a consequence of the penetration of mankind into outer space, Mandl envisaged a substantive change of relations between the State and its nationals, which would not be based on State domination, so that both the State and its nationals would become equal subjects. According to his vision, the territory will lose its importance as one of the basic elements of each State and new national communities consisting of personal elements only will emerge. People will retain such new nationality when going to outer space and other planets. Mandl was convinced that “no earthly State will be in a position to exercise an organized control over another celestial body in order to bring into effect its laws there; the legal control will thus be illusory and indeed, not only in that distant region but also on the Earth itself.”<sup>23</sup> This expectation, Mandl formulated in a concise sentence: “The individual will achieve a legal recognition of his self-determination.”<sup>24</sup> And the term space law will become “not only a complex of norms newly added to the existing law, but finally a new set of norms which will be quite a different phenomenon than is the present legal order.”<sup>25</sup>

## E. Mandl’s Other Publications and University Teaching

In 1936, Mandl published in Germany a tiny theoretical study on causal theory of law.<sup>26</sup> In this study Mandl entered the field of theory of law and legal phi-

21 VLADIMÍR MANDL, DAS WELTRAUMRECHT, p. 34.

22 *Id.* at 38.

23 *Id.* at 43.

24 *Id.* at 45.

25 *Id.* at 48.

26 Vladimír Mandl, *Eine kausale Rechtstheorie* (A Causal Theory of Law), in: Rechtswissenschaftliche Studien, Heft 60, Verlag Dr. Emil Ebering, Berlin, 1936. In 1938, Mandl also published a Czech version of this study in Prague.

losophy. He considered human economic activities to be the leading momentum of emergence of legal rules and their regulation the utmost purpose. In his opinion, law is a “system of principles which are used by the public power in order to achieve specific socio-economical aims”.<sup>27</sup> These principles should be understood as imperatives to pursuit of a specific aim, accompanied by sanctions in the form of psychical pressure. Every legal order is inevitably based on authority, not on physical violation and force.

In the chapter “Law and Society” Mandl then analysed the role of law in various socio-economical periods. He observed the phenomenon of revolutions, which “apparently turn all principles of the former legal order upside down”.<sup>28</sup> However, he was skeptical towards the power of revolutionary novelties in legal systems. In his opinion, they represented only a relabeling of the elements of the old legal order.

According to his view expressed in his publication, the role of international law should not be exaggerated: As a system, it is too fragmented to unify all spheres of the national legal order; moreover, international legal norms cannot be enforced because international law lacks any enforcement structure comparable to those of States. Mandl also drew attention to the problem of justice of legal rules: Any legal order has to comply with social flows; positive law as such cannot achieve social justice.

For the purposes of this chapter on Mandl’s life and work, the most interesting is “The Supplement” to its study in which the author discussed the consequences of the new phenomenon of his period, the industrialization of human activities. He predicted that the “repeatability” of human behavior would enable to intensify the application of the principle of causality in the jurisprudence: in contrast thereto, the individuality of human behavior and metaphysical criteria will lose their weight. Only the powers of the legal system, which require and lead to specific behavior of human beings will remain untouched and the law will preserve its character as a mechanism of legal forces and institutions.

Moreover, during the second half of the 1930s, Mandl explained his economic and philosophical views in a number of papers mostly published in

27 *Id.* at 11.

28 *Id.* at 20.

Czechoslovak scientific journals. They offer evidence of his wide erudition and sociological interests.<sup>29</sup>

Starting from the academic year 1933-34, Professor Mandl was lecturing at the same time his course on the law of industrial enterprises at the Czech Technical University in Prague. His last lectures were announced in the University *curricula* for the academic year 1938-39. In September 1938, the four powers (Nazi Germany, Fascist Italy, Great Britain and France) “adjudicated” by the so-called Munich Agreement the frontier regions of Czechoslovakia populated mostly by its German minority to Nazi Germany. And on March 15, 1939 its troops invaded the remaining Czech part of Czechoslovakia. A few months later, in November of the same year, all Czech universities were closed by the occupants as a sanction against the protests of Czech students against the occupation. Thus, the university teaching of Professor Mandl was also terminated.

For some time, Mandl continued his participation in the then efforts of Czech scholars and engineers to finalize the establishing of a National Technical Museum in Prague by search of documents and collection of objects for its aeronautical part, which started during the second half of the 1930s. At that period, Mandl still managed to visit and report on the foreign air collections, such as the Air Museum in Moscow (in 1937) and the Smithsonian Institution in Washington (in 1938). He was also familiar with the aeronautical collections in Paris and Munich. He was still thinking about the aeronautical collection to be established in Prague during his “unvoluntary holidays”, as he called it in a handwritten letter dated September 22, 1940, which was addressed to the main organizer of the collection from the tuberculosis sanatorium in Pleš near Prague, when his health condition was deteriorating.

29 He did so e.g. in the following papers: *Technokracie, hospodářský systém budoucnosti* (Technocracy – Economic System of the Future), Prague, 1934; *Přírodovědní národohospodářská teorie* (Scientific Economic Theory), Prague, 1936; *Stát a vědecká organizace práce* (State and Scientific Management of Labour), Pilsen, 1937. From among his other papers the following studies should be mentioned: *Vědecká metoda Einsteinova relativismu* (Scientific Method of Einstein’s Relativity) in *Česká mysl, časopis filosofický* (Czech Thought, a Philosophical Journal), Vol. 31, No. 3-4, Prague, 1915. On the eve of World War II, Mandl published a study entitled *Válka a mír* (War and Peace), Prague, 1938.

On January 8, 1941 Vladimír Mandl died in his uncompleted forty-second year and was buried in the Mandl family tomb at the Central Cemetery of Pilsen, in the city where he had been born and spent most of his life.

## F. Evaluation of Mandl's Work in Space Legal Literature

Vladimír Mandl was the first author who approached future legal problems of space flights as a legal scholar. He attempted to create a system of ideas and legal principles to govern activities in outer space 25 years before such activities started and the process of establishing the rule of law for this vast area was initiated.

Several later authors specializing in this newly born discipline of space law recognized his fundamental role in creating its doctrine. For example, Dr. Welf-Heinrich Prinz von Hannover, in his doctoral thesis that he defended at the University of Göttingen (Germany), mentioned Mandl as the first among the early writers on space law.<sup>30</sup> Ernst Fasan (Austria), Honorary Director of the International Institute of Space Law (IISL), called Mandl “The Father of Space Law” in his monograph on this subject.<sup>31</sup> Gerhard Reintanz, former Professor of the Martin Luther University in Halle/Saale (Germany), appreciated Mandl as “one of the pioneers of Space Law” who should not be forgotten.<sup>32</sup> Stephan Hobe, Director of the Institute of Air and Space Law, University of Cologne (Germany) and Director of Studies of the IISL, precisely summarized Mandl's work with special attention to Mandl's 1932 space law study in his above mentioned report on early writers on space law that he presented at the 2010 Colloquium of the IISL which he concluded: “The work of Vladimír Mandl is so impressive because it was so early and so informed when he wrote about space flight and space law .... An expert in air law, in

30 The English translation of Prinz von Hannover's thesis AIR LAW AND SPACE LAW was later printed in LEGAL PROBLEMS OF SPACE EXPLORATION, A SYMPOSIUM, prepared for the use of the Committee on Aeronautical and Space Sciences of the US Senate, Washington, D.C., 1961, p. 271 *et seq.*

31 Ernst Fasan, *Weltraumrecht (Space Law)*, Mainz, 1965, p. 21.

32 Gerhard Reintanz, *Vladimír Mandl – The Father of Space Law*, in: Proceedings of the Eleventh Colloquium of the Law of Outer Space, International Institute of Space Law of the IAF, October 17-18, 1968, p. 365.

German marriage law, and other fields of law, he is also very knowledgeable in space science, rocket technology, and offers, in 1932, a tremendously innovative study”.<sup>33</sup>

Finally, Stephen E. Doyle (USA), Honorary Director of the IISL, who devoted a great effort to the research into the history of space law, should be quoted in the conclusion of this chapter on Vladimír Mandl: “Mandl was clearly a man of genius. He died at the relatively young age of 41, having done and produced more work in his lifetime than many could accomplish in twice his life’s span.... Mandl’s extrapolation of future relations among humans in a different society and relations between them and their institutions is a speculative, visionary, courageous and philosophical piece of writing. This young lawyer, engineer, pilot, professor, inventor, was also a remarkable philosopher. His work deserves more study than it has received. Mandl’s writing will repay serious effort devoted to its study with many rewards.”<sup>34</sup>

It must be regretted that due to his premature passing away, Vladimír Mandl could not witness and comment on the accomplishment of the first space flights, the landing on the Moon, the establishment of the first space stations and the development of international cooperation in space activities, as well as to participate in the creation of the peaceful regime for outer space.

33 Stephan Hobe, *Vladimír Mandl, Alex Mayer, Welf-Heinrich, Prince of Hannover, Friedrich Wilhelm von Rauchhaupt. Early Writings in German on the Young Discipline of Space Law*, in: Proceedings of the International Institute of Space Law, 2010, p. 21 *et seq.*

34 STEPHEN E. DOYLE, CONCEPTS OF SPACE LAW BEFORE SPUTNIK, 2009, the manuscript of a major historical work so far unpublished, pp. 107-108. The authors of this chapter borrowed the relevant parts of Dr. Doyle’s work from him and quote them with his permission. Upon his initiative, a translation of Mandl’s study on Space Law into English was provided by Lloyd E. Jonas, Jr. Subsequently, the US Aeronautics and Space Administration (NASA) sponsored a new translation of Mandl’s study, which was completed in 1984. The first translator was then requested to reconcile the substantive and stylistic differences between the two translations. Dr. Doyle considers this emerging text as “the best translation that could be made half a century after the original author’s death.” (*Id.* at 58) The authors of the present chapter used it for interpreting Mandl’s original German text, which was juridically correct and precise, but they applied some own translations in the relevant quotations.



## **G. Bibliography of the Main Works of Vladimír Mandl**

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