A SURVEY OF SOME DEVELOPMENTS IN AIR AND SPACE LAW*

by

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AIR LAW

First, let us consider the Warsaw Convention of 1929 on air transportation and its amendments. This so-called Warsaw system deals with the liability of the air carrier for damage to passengers, to their baggage, to cargo and also for delay in the transportation. In this respect, there is a tendency to shift from the fault liability of the carrier to risk liability. However, until now, neither the Guatemala Protocol of 1971 nor the Montreal Protocol 3 of 1975 which deal with the question, and which amend the Warsaw Convention of 1929, have been ratified by a sufficient number of states for them to enter into force.

The aim of the Warsaw Convention is the unification of certain rules relating to international carriage by air, but that has only been partially realized, especially in the transportation of cargo. The Convention has suffered because of: (a) the addition to it of several Protocols, some of which have not yet been ratified by all states; and (b) the different interpretations of the rules by national judges which have occurred. This is most evident in the differences which exist in interpretation by domestic courts in USA. Further, the amount of damages that passengers may receive in case of accident may differ because of the different limits provided in the Warsaw Convention, its Protocols and the Montreal Agreement of 1966 (which is an agreement between air carriers and USA).[1] However, in relation to cargo, the original idea of unification of the rules of international transportation by air has been preserved mainly because Montreal Protocol 4 of 1975, which provides some rules in this respect, has also been insufficiently ratified for it to enter into force.

Today, transportation by air is increasing rapidly, and especially transportation of cargo (including animals). However, there are several articles in the Warsaw Convention which should be clarified. For example, Article 23(1) which was added by the Hague Protocol of 1959, states that paragraph 1 of this article "shall not apply to provisions governing loss or damage resulting from the inherent defect, quality or vice of the cargo carried".[2] Thus, it is possible for the carrier to be relieved of his responsibility when he proves that the cargo itself has an inherent defect. The intention of this article was to permit carriers to avoid liability or to fix lower limits in cases where they are not at fault and where the loss or damage occurred by reason of some aspect of the cargo carried. For example, if transported animals are already ill before the transportation, the carrier is not liable. But when the transportation does not comply with normal and reasonable conditions (see IATA rules 1980 on the

transportation of animals) the carrier may be liable. The interpretation of Article 23 therefore still raises problems and it would be helpful if its meaning is clarified.[3]

Of the developments which are happening, automation in aviation is perhaps the most striking. Over the years, the documentation and data required for proper ticketing have become more and more complicated. In Article 3 of the Guatemala Protocol of 1971 (which is not yet in force) the concept of collective tickets has been introduced. Moreover, there is the possibility that "any other means which would preserve a record of the information indicated ..... [may be] substituted for the delivery of the document". Such wording in fact envisages ticket-issuing by slotmachines.

Computer-aided processes and techniques have also greatly benefitted airline booking offices and travel agents. But whatever are the blessings or dangers of automation, as far as the airline ticketing process is concerned, it cannot be held to affect the carrier's liability in any way. Regarding cargo, there are now several systems in use.[4]

There is also the new phenomenon of international data transmission and interchange, which in turn raises the question of jurisdiction in relation to electronic border-crossing data transmission. But the lapse in time between the moment of transmission of the data and the receipt of the cargo has to be taken into account because it raises the further question as to who will bear liability for errors in electronic transmissions and whether it will be possible to disclaim liability.

However, there is a number of practical differences between automation in cargo handling and passenger traffic. Regarding cargo, the systems are primarily devised to reduce the paperwork involved and to speed up, generally speaking, the actual handling of cargo by the various parties concerned (eg shipper, break/bulk agents, forwarding agencies etc). In contrast, automation in relation to passenger traffic is used primarily for reservation and flight information service and is almost exclusively used in the pre-flight stage. Another important aspect is the fact that automation in cargo handling is often a joint effort of all parties concerned, sometimes even involving customs authorities, whereas automated passenger reservation systems are usually created by a single airline or group of airlines which sometimes may have adverse side effects insofar as a bias in favour of the founding airlines may be introduced into the system.

In relation to mortgage and other rights which may be established regarding aircrafts, it is clear that the importance of the Geneva Convention of 1948 on the international recognition of rights on aircraft has been lessened by the increasing use of leasing contracts. For instance, Professor Komar Kantaatmadja has pointed out the importance for Indonesia to establish certain rules which address the present discrepancy between the needs of legal practice and the existing regulations in force. She rightly observes that there is an "interrelationship between

provisions of national law and international law, without classifying air law into private and public air law".[5]

In fact, this interrelationship applies to all countries. In this respect, it is worthwhile considering Article 83bis (an amendment) of the Chicago Convention of 1944. During the 23rd Session of the ICAO Assembly, held in Montreal from 16 September to 6 October 1980, Resolution Article 23-2 was adopted. By this Resolution, the Assembly unanimously adopted the text of a new Article 83bis to be inserted into the Convention. This article is to provide for the possibility of the transfer of functions under Articles 12, 30, 31 and 32 (a) of the Chicago Convention from the state of registry to the state of the operator, in case of lease, charter or interchange of aircraft, or any similar arrangement. At the time the Chicago Convention was drafted, the problem of leasing and charter was non-existent. Consequently, in the Chicago Convention all functions and duties attach to the state of registry. But that state may not be in a position to fulfil these duties if the aircraft is operated, on the basis of lease, charter or interchange, by a foreign operator far removed from the state of registry.

The amendment will come into force after ratification by 98 states (see Article 94a of the Chicago Convention, which provides that each proposed amendment to the Convention must be approved by a two-thirds vote of the Assembly and that the number specified for ratification shall not be less than two-thirds of the total number of Contracting States). However, the article is not yet in force because the necessary ratifications are lacking. But once in force, the article will definitely contribute to the practice of leasing.

The most recent development in aviation in Europe is the decision of the EEC governments to effect an internal European air transport market by 1992. This contrasts with the reasons for the genesis of the aviation industry. Historically, the practical reasons for the world's original interest in aviation included military considerations. The Convention of Paris of 1919, the first Convention on aviation, and the Chicago Convention of 1944, which succeeded the Convention of Paris, were concluded either at the end of or immediately after a World War, at a time when defence requirements and the national interest were calling for a close watch on aviation developments and government control. Another practical reason was the need to maintain close links between states and their need for fast communication with former colonial territories, dominions, and the new states which were emerging. Other reasons were economic in nature. For instance, aviation was perceived as a means for furthering economic interest and prosperity on a worldwide scale.

After the compromise of the Bermuda type agreements,[6] USA decided in 1978 to officially adopt a new approach by introducing "deregulation" into its relations, a step followed by the US Deregulation Act of 1979. This deregulation meant that primarily there was to be no government intervention in scheduled fares except by mutual agreement, and there was to be no control on capacity.

So far, only Australia, Canada and Europe have shown any inclination to follow USA in the direction of deregulation. Africa, Latin America and Asia (with the exception of Singapore) are more inclined to adhere to protectionism. While deregulation in the US has meant deregulation of domestic air transport, deregulation in Europe would imply deregulation of international traffic, including liberalization of the European market. Without doubt, increased pressure for the development of regional and even a world integrated air market will follow. This will necessarily result in calls for fair competition, in which national carriers, for example Qantas, will be called upon to give up some or all of its existing flying rights.

However, there is a difficulty here. At present, Qantas has attractive existing flying rights which are attractive to foreign investors. But with privatisation, there may be less pressure on the Australia Government (as the former owner) to protect those rights, thus diminishing Qantas' attractiveness.

A regional market currently exists in USA while such a market is being developed in Europe. This would result in a level playing field between carriers. Now there are calls to integrate the two into a North Atlantic market which would be the world's largest market. However, the time is not ripe for that. One of the reasons is the difference in the markets existing in USA and Europe: the US market is domestic and makes use of domestic carriers whereas the European market consists of several markets which make use of different national carriers.

Further, with the deregulation of the US market, the US government has withdrawn its influence on the market. On the other hand, great government influence exists in the European market. Further, the flying rights currently in existence (think of the Bermuda Agreement!) give some carriers a definite advantage (eg British Airways and the leading American carriers). Thus, it is proposed that if a North Atlantic market is created, fair competition must prevail ie American and European airlines must give up existing rights, and in the regional market in Asia and the Pacific, a similar approach could be anticipated. In 1983, a directive on inter-regional air services came into force, which liberalized to some extent air services between European regional airports. Notwithstanding all of the above, full liberalization has to be realized by 1992 and as a starting point, there exists the ICAC Council package of 4 December 1987, and the ICAC Agreement on capacity sharing and tariffs.

Another development is in aviation security. It was evident from the results of an international questionnaire conducted by the International Foundation of Airline Passengers Association in 1988, that passengers travelling by air consider the improvement of aircraft security as one of their top priorities. They asked for better security controls and more severe penalties for hijackers, including sanctions against countries which support terrorists.

Unfortunately, no worldwide-accepted definition of "international terrorism" exists although it has been

sometimes described as the illegitimate use or threat of violence, which arouses feelings of fear amongst one or more persons or the civil population, by (a group of) individuals, who are sometimes supported by a state, with the ultimate purpose of effecting change in the existing political order of a state or in the decision-making of an international organization or multinational corporation.[7]

Three Conventions relating to penal air law are now in force: the Tokyo Convention of 1963 on offences and certain other acts committed on board aircraft, the Hague Convention of 1970 for the suppression of unlawful seizure of aircraft, and the Montreal Convention of 1971 for the suppression of unlawful acts against the safety of civil aviation. The last Convention has been ratified by 137 states. In October 1986, the 26th Session of the ICAO Assembly adopted, at the initiative of Canada, a unamimous Resolution calling for the preparation of an instrument for the suppression of unlawful acts of violence at airports serving international civil aviation. In June 1987, the Council of ICAO decided to convene an international conference on air law to consider a draft prepared by the Legal Committee. As a result of its deliberations, the Conference decided on 24 February 1988 that the draft would be added to the Montreal Convention of 1971 in the form of a Protocol. As Professor Michael Milde observes, it is an unprecedented event that an international conference could adopt an instrument of international law dealing with aviation security without vote, but by general consensus.[8]

One of the most important developments is the definition of the term "offence". Because offences are in some states judged as misdemeanours and in other states as infringes, the neutral term "offence" was used in the penal conventions. But until recently, the conventions did not define this term. For the first time, a definition of "offence" was given in Article II of the 1988 Protocol to the Montreal Convention which states that in Article I of that Convention the following shall be added as a new paragraph 1bis:

> 1bis: Any person commits an offence if he unlawfully and intentionally, using any device, substance or weapon: (a) performs an act of violence against a person at an airport serving international civil aviation which causes or is likely to cause serious injury or death; or (b) destroys or seriously damages the facilities of an airport serving international civil aviation or aircraft not in service located thereon or disrupts the services of the airport, if such an act endangers or is likely to endanger safety at that airport.

In the Final Act of the Conference, a Resolution was embodied, emphasising preventive measures in aviation security and the urgent need to increase technical, financial and material assistance to states. Such assistance was directed particularly at developing states which face difficulties in fully implementing costly preventive measures owing to their lack of financial and technical resources.

The Protocol will enter into force 30 days after ratification by 10 states. It has already been signed by 47 states.

Another new convention is worth noting ie the Convention on the marking of plastic (and sheet) explosives for the purpose of detection which was adopted by the ICAO Assembly on 1 March 1991.

In the Netherlands, there is a new Draft of the Netherlands Aviation Accident Act, which replaces the existing Netherlands Aviation Disaster Act. Although this new Draft Act is a national instrument, its scope is of international relevance. For example, Article 26 of the Chicago Convention states that "in the event of an accident to an aircraft of a contracting state, and involving death or serious injury, or indicating serious technical defect in the aircraft or air navigation facilities, the State in which the accident occurs will institute an inquiry into the circumstances of the accident, in accordance, so far as its laws permit, with the procedure which may be recommended by the International Civil Aviation Organization". A weakness in this article is that no period has been mentioned within which the report of the accident needs to be delivered. On the other hand, the Netherlands Aviation Disaster Act, in existence before the Chicago Convention, contains the rules of the Council of Aviation, which not only has the authority to enquire into the facts of the accident, but it may act as a disciplinary body as well.

In the new Draft of the Aviation Accident Act the task of inquiring into the accident only has been included. The Council has no disciplinary powers. This move is more in accordance with the text of the Chicago Convention and as such, it has a distinct advantage. Since it is not to be a disciplinary body, witnesses and crew will give evidence more freely when called before the Council and this is definitely an improvement to the current system when it comes to accident investigation.

Annex 13 completes the rules of Article 26 of the Chicago Convention. According to Article 3.1 of Annex 13 the purpose of the investigation is to prevent accidents in future and not to apportion blame or liability. During the discussion of the new Draft it was rightly observed that not only accidents but also incidents have to be examined, which would help to prevent accidents and allow the taking of necessary preventive measures in time.[9]

SPACE LAW

Here, several recent developments in space law shall be dealt with. The first is the increasing influence of commercial activities in outer space. This has by necessity stimulated the acquisition of different technologies and it has opened a very important market for the supply of new services. As was said by Mrs Catalano Sgrosso, industrial activities have concentrated on the large-scale production of new materials, medical or biological products or new technologies, and have taken advantage of the unique conditions of space. She concluded rightly that "the need may arise for legal norms regulating the problems not only of intellectual ownership but

also of legal specification of the obligations of States Parties to the Space Treaties".[10]

Another important development is the liability of states for activities undertaken in space by private companies. The Liability Convention of 1972 does not provide special rules for the regulation of private activities. Until now, the state to which the company belongs will be liable for damage caused by the activities of the international intergovernmental organizations (which the company is part of) only when the organization itself, although considered liable, has not paid compensation. This is based on Article XXII of the Liability Convention and Article VI of the Space Treaty of 1967. But the Liability Convention does not apply to private governmental organizations. This gap could cause problems, as nowadays these organizations launch satellites for commercial purposes. Consequently, USA for instance, has enacted a Commercial Space Launch Act,[11] which has independently established a licensing requirement for the conduct of space launches and related activities.

In the various space treaties, no mention has been made that only states can engage in space activities; thus, other entities are able to take part in such activities as well. But the treaties in existence only provide for the responsibility of states; it does not mention other entities. The questions which have arisen are: (a) do states have a supervisory role in respect of private activities? (b) Who bears this international responsibility? Article VI of the Space Treaty only mentions "the appropriate State signatory of the Treaty".

Dr Bourely, former Head of the Legal Division of the European Space Agency, has commented on the different possibilities which exist. He observes that "it could, for example, be considered that the "appropriate State" is the State which exercises jurisdiction on, and has control of, the private company pursuing the space activities; in other terms, it would be the State which governs the territory in which the company has its head office, or a branch, establishment or plant. However, this territorial definition of "appropriate" could be widened to cover the State which authorizes or allows the space activity of a company whose head office is in another State to be carried out on its own territory. The "appropriate State" could, therefore, also be a State governing the territory from which the space vehicle is launched or a satellite controlled or operated; moreover, all these operations could be carried out from different countries".[12]

This is only one of the more important problems concerned with the commercialisation of space. The problems have in fact resulted in case law on the subject.

Another development deals with the geostationary orbit (GSO). Why is this ring which is 36.000 km above sea level and parallel to the earth, so important? The GSO is generally recognized as a limited national resource which is also the best place for some satellite activities. In the meantime

however, the principle of "first come, first served" has been abandoned in practice. In 1977, it was abandoned in relation to broadcasting satellites services. Other developments relating to the GSO were seen in the World Administrative Radio Conference (WARC-ORB-1 Conference) in 1985. Further, the WARC-ORB-2 Conference of August 1988 considered planning principles, planning matters as well as procedural guidelines. Included in the discussion at this Conference was a priori planning on the basis of equity access.[13]

As early as April 1987, during the United Nations Environment Program Conference, the idea of a "parking fee" for satellites in a geostationary orbit was tabled. The fee was to be either 50% of the profits made from the satellites or 5%-10% of the turnover. It was proposed that the proceeds would be used towards an UNEP sponsored anti-desert program.

Under Resolution No 3 of the 1979 World Administrative Radio Conference (WARC), it was decided to convene a meeting. Its objective was to achieve for all countries a guarantee of equitable access to the geostationary satellite orbit and to the frequency bands allocated to the space services using it. As Dr Jakhu observes, "it is important to note that this decision was taken on the initiation and insistence of those ITU member states (mostly the developing countries), which felt that some developed countries were monopolizing the use of the spectrum/orbit resource and that if the existing practice of "first come, first served" continued to apply to the distribution of radio frequencies and orbital positions for space services, there would not be sufficient and appropriate radio frequencies/orbital positions left for them when they were ready to use them".[14]

As a consequence of the above-mentioned Resolution, WARC-ORB-85 was held in Geneva in 1985 where a compromise was reached.

Therefore, one of the topical issues considered by institutions and space lawyers alike is the question of the environmental protection of outer space. The benefits of the use of outer space in areas like telecommunications and remote sensing, to name a few, have been amply documented. Less universally known are probably the side-effects that often accompany a major breakthrough in scientific research. When this happens, the question is whether any of the existing rules could or would be applicable.

What is the nature of the damage that could be caused to the space environment? It is generally acknowledged that six different types of damage may be distinguished ie:

1. the damage caused by debris circulating in space;
2. damage caused by harmful contamination and harmful interference;
3. damage caused by nuclear and radioactive space activities;
4. damage to the ozone layer;
5. damage caused by large space structures; and
6. damage caused by solar satellites.

The space treaties, including some other treaties which do not specifically deal with space, provide some rules on this matter. The Space Treaty of 1967, in Article I, stipulates that states, when exercising the right of exploration and use of outer space, have to take into account the fact that space is the province of all mankind, and that any such activities have to be for the benefit and in the interest of all states. Furthermore, Articles III, IV and especially IX of this Treaty are applicable. The same goes for the rules of the Liability Convention of 1972, which elaborates on the provisions on liability of the Space Treaty of 1967, eg Article XXI. As there can be no compensation without linking the offender to the damage, the Registration Treaty of 1975 is of importance, including the Rescue Agreement of 1968. Besides these treaties, a number of other international accords needs mentioning.

Article 7 of the Moon Agreement of 1979 has amplified the rules laid down in Article IX of the Space Treaty of 1967. There is also the Treaty banning nuclear weapon tests in the atmosphere, outer space and under water, signed on August 5, 1963. Another convention relating to environmental activities is the Convention on the prohibition of military or any other hostile use of environmental modification techniques of 1977. Futhermore, there is the Convention on the prohibition of the development, production and stockpiling of bacteriological (biological) and toxic weapons and their destruction, in force since 1975. And finally, there are the rules of the International Telecommunications Union and organizations like Intelsat and Intersputnik, which provide for the surveillance of damage that may be done in space to telecommunications.

The problems which exist in relation to the above are manifold and cannot be dismissed as trivial or purely academic. Take for example the case of the Russian Kosmos Satellite that fell down in Canada and the Kosmos Satellite 1714 that fell down in North Australia. Are the treaties, as they stand at present, adequate in dealing with environmental damage? Is it possible to adapt them to cover today's hazards? If there are gaps, how do we make new rules? Is this a matter that ought to be considered by the Legal Sub-Committee of the United Nations? Let us now consider some of the manifold opinions of the experts. For instance, as Dr Kopal observed:

> "It is obvious, however, that the general background of the present international law of outer space is far from being satisfactory for the solution of all legal problems relating to space debris; nevertheless, some new movements in the field of space law can be noted in this respect, eg in the consideration of problems relating to the use of nuclear power sources in outer space in COPUOS. In the Scientific and Technical Sub-Committee, these problems have been discussed in great detail in a Working Group which recently considered the possibility of collision of a space object carrying a nuclear power source on board, either in operation or in a disposal orbit after operation, with a particle of space debris. The Legal Sub-Committee of COPUOS has also been discussing these problems in an attempt to elaborate draft principles relevant to

> the use of nuclear power sources in outer space. A successful conclusion of these efforts in the form of a set of internationally agreed principles relevant to the use of NPS in outer space might become an overture to a similar approach to more general problems of space debris, with the aim of elaborating internationally agreed rules dealing with this new subject".

The situation is actually more serious than is generally known. Of the 7,000 space objects in orbit, only 150 to 350 are active satellites, while the remainder do not perform any useful function. As Dr Perek rightly pointed out: "for every active satellite there are 20 to 50 useless objects in outer space". According to him, only the United Nations is able to protect the space environment. His suggestions as to how to deal with it are realistic and important. He states: "in high orbits, such as the geostationary orbit, a return to the ground would require too much energy. There is, however, beyond the geostationary orbit, a vast area of space not used for any purpose. Satellites can be removed into disposal orbits in that area by using a relatively small amount of fuel. This was recognized several years ago when three Intelsat satellites were removed several hundreds of thousands kilometers beyond the geostationary orbit. Since that time several operators have done the same with success and at no cost to the active lifetimes of their satellites".

Further, his conclusions are the following:

- The design of a space object should permit its removal, after termination of its mission, into a disposal orbit, or initiate its intended decay.
- The design of a space object should restrict to a minimum the number of debris generated during its mission, in particular of debris with long lifetimes.
- International explosions of space objects should be prohibited; unintentional explosions should be prevented.
- Outer space should be reserved for peaceful and useful missions.
- Collision avoidance through traffic separation should be discussed on an international level.
- It is desirable to consider mechanisms for collecting, processing and a timely dissemination of data on space objects.

Finally, Dr N Jasentuliyana has observed that "if space activities continue to expand, both in terms of numbers of space craft and numbers of countries involved, it may become useful to consider some flexible mechanism for dealing with environmental and other space regulatory problems as they arise and evolve". He has given several suggestions to realize this, including the creation of a body which consists of an intergovernmental group of technical experts who meet regularly. Their function is to develop a body of "recommended standards and practices", similar to those that exist in the aviation field.[15]

In my opinion, the only way to control harmful activities is verification by remote sensing. The term "remote sensing"

means the sensing of the earth's surface from space by making use of the properties of electromagnetic waves which are omitted, reflected or diffracted by the sensed objects, for the purpose of improving natural resource management, land use and protection of the space environment.

On a national level, detailed regulation to protect the environment is already in force in many countries, but international rules to protect the space environment are still insufficient.

Another new development is the increasing tendency to construct large space structures eg space stations in outer space like Salyut, Soyuz, Skylab, Spacelab and Mir. In this regard, the Space Treaty of 1967 may be used as a basis for the solution of legal problems which may be created by these special satellites.

In such activities, international co-operation is therefore required, due to the complexity of the structures and the variety of activities involved. Moreover, these structures are being increasingly used for commercial activities. But the Space Treaty of 1967 and the four treaties derived from it could not foresee the fast development of space activities, especially in the field of applications such as telecommunications and remote sensing. In his reflections on space activities as a subject of Space Law, Professor K H Bockstiegel rightly observes that the term is used in so many different ways that a generally applicable meaning cannot be established. He concludes that "what we are left with is the need to interpret the definition and scope of space activities individually in the context of every single article referring to them".[16]

Space stations give rise to many questions also. For instance, will it be desirable to construct a safety zone around space stations? Who is the management? Who is eventually responsible for disciplinary measures? Who is responsible for the division of tasks? And who has responsibility for damage caused to and by the space station?.

A solution which has been put forward by several outstanding space lawyers is the taking of steps to define certain terms so as to avoid misunderstanding in interpretation.[17] Another solution may be the possibility of settling international disputes by peaceful means. But above all, co-operation will be needed to solve the problems, on an international, regional and national level. It is evident that a solution cannot be reached without the co-operation and goodwill of all states and the sincere will of states to explore and use outer space for the benefit and in the interest of all mankind. This applies not only to the military aspects but also to all other fields of activities in outer space.

Notes

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in Hukum Angkasa Dan Perkembangannya (Dr E Saefullah Wiradipradja, et al, eds), 1988.

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1) See G Miller, Liability in International Air Transport, 1977.

2) The text of Article 23, paragraph 1 states: "Any provision tending to relieve the carrier of liability or to fix a lower limit than that which is laid down in this Convention shall be null and void, but the nullity of any such provision does not involve the nullity of the whole contract which shall remain subject to the provisions of this Convention". Paragraph 2 states: "Paragraph 1 shall not apply to provisions governing loss or damage resulting from the inherent defect, quality of vice of the cargo carried".

3) Cf I H Ph Diederiks-Verschoor, 'Some observations on Article 23, Paragraph 2 of the Hague Protocol of 1955', Mensch und Luftfahrt, 1981, pages 39-45; and the comment of G Lauzon on Attorney General of Canada and Canadian Hunger Foundation v Flying Tiger Line and Air Canada, Air Law, Volume XIII (1988), pages 37-38.

4) F A van Bakelen, 'Aviation wizards - terminal hazards. Airline's computerized reservation systems (C.R.S); a benefit or a burden?', Air Law, Volume XIII (1988), paragraph 77-92; P N Ehlers, Computerized reservations systems in the air transport industry, 1988.

5) See M Komar Kantaatmadja, Security Rights in Indonesia Aircraft - An Air Law Perspective, (thesis), Bandung, 1988.

6) See H A Wassenbergh, Post-War International Civil Aviation Policy and the Law of the Air, 1957.

7) W Schreuder, 'Measures against terrorism', Leiden Journal of International Law, Number 1, 1988, page 51 et seq.

8) H G Rutgers, Conventions on Penal Law regarding aircraft, (thesis) Utrecht, 1978; Cf M Milde, Air Law, 1988, page 95, and the Conference Procedings, Aviation Security, January 1987, Peace Palace, the Hague, International Institute of Air and Space Law, University of Leyden et al.

9) A A van Wijk, Aircraft accident inquiry in the Netherlands, a comparative study, (thesis), 1974, and Berend J H Crans, 'The draft Netherlands Aviation Accident Act', Air Law, Volume XIII (1988), pages 101-105.

10) G Catalano Sgrosso, 'International Legal Aspects of Commercialization of Private Enterprise Space Activities', Proceedings Colloquium International Institute of Space Law, Brighton, 1987.

11) See Proceedings Colloquium International Institute of Space Law, 1987, Brighton; the Proceedings of the International Institute of Space Law, Innsbruck, 1986, pages 154-205; 49 United States Code 2601-23. For details on this Act, see E J Steptoe, 'Regulation of Private Commercial Space Transportation by the United States Department of Transportation', Proceedings Colloquium International Institute of Space Law, Stockholm, 1985, page 240 et seq.

12) M Bourely, 'Rules of International Law Governing the Commercialization of Space Activities', Proceedings Colloquium International Institute of Space Law, Innsbruck, 1986, page 157 et seq.

13) See D H Leive, 'The Role of Intelsat in the Use of the Geostationary Orbit'; and R E Butler, 'The Role of the ITU in the USE of the Geostationary Orbit'. These were papers presented at the Symposium on the Use of the Geostationary Orbit, the International Academy of Astronautics, IAF Congress, Brighton, 1987; R Jakhu, 'The Evolution of the ITU's Regulatory Regime Governing Space Radiocommunication Services and the Geostationary Satellite Orbit', Annals of Air and Space Law, Volume VIII (1983), page 381 et seq.

14) R Jakhu, 'A Legal Analysis of the 1985 ITU Space Conference Report', Proceedings Colloquium International Institute of Space Law, Innsbruck, 1986, page 103 et seq.

15) The above-mentioned lectures have been published in Environmental Aspects of Activities in Outer Space, State of the Law and Measures of Protection, Proceedings of a Colloquium (Cologne, May 16-19, 1988), K H Bockstiegel (ed).

16) K H Bockstiegel, 'Some Reflections on Space Activities as a subject of Space Law', Proceedings Colloquium International Institute of Space Law, Stockholm, 1985, page 211 et seq.

17) See Proceedings Symposium on Maintaining Outer Space for Peaceful Uses, The United Nations University, The Hague, March 1984.