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INTERNATIONAL REVIEW

Statement of International Air Transportation Policy

I. INTRODUCTION

Statement by The President†

Last August I asked the responsible agencies of the Government to conduct a systematic review of our policies in the field of international air transportation. Such a review had not been carried out in this country since 1963. During those seven years international aviation had grown dramatically in traffic volume, improved equipment and fuller schedules of services.

With this growth, international aviation in the 1960s made a unique and valuable contribution to our commerce and contacts abroad, and consequently to our national life. At the same time, as in most human activity, this rapid expansion brought some complications along with its undoubted benefits. Traffic outstripped our airport facilities and produced serious problems of congestion and delay. Differences developed concerning the appropriate roles of types of carriers in serving the expanding markets and exploring new markets. Questions arose in some quarters as to whether our basic pattern of bilateral agreements with other countries, or the nature of our supervision over international rates and fares, were suited to the changed circumstances.

All these questions needed fresh analysis. More important, it was apparent that technological developments already foreseeable would make these questions, and others like them, significant for the 1970s. Thus, a full review was essential both to meet current difficulties and to assure that our present high standards of international air service will be maintained through the next decade.

The review I requested has now been completed by a broadly representative committee under the leadership of the Department of Transportation. The committee membership included the Departments of State, Justice, Commerce, Treasury and Defense, as well as the Bureau of the Budget, the Civil Aeronautics Board and the Council of Economic Advisors. In its proceedings this committee investigated in detail a very wide range of international air transport matters: our aviation agreements with other countries; the relationship of scheduled and supplemental carriers; the way in which fares are established; our policies concerning competition among carriers; and how best to expedite the movement of passengers and cargo as demands upon facilities increase. The study also dealt with such issues

† Office of the White House Press Secretary; released June 22, 1970 from The White House.
as carrier liability, insurance, user charges for aviation facilities and the implications of international aviation for our balance of payments.

In the course of its work on these questions, the committee sought and weighed the views of interested parties from within and without the aviation industry, including carrier and airport officials, shippers, consumers' representatives and governmental authorities from all levels.

I have now received and studied the report of that committee, in the form of a Statement of International Air Transportation Policy. This statement confirms that many of our past guidelines are still useful and relevant. In other cases, to meet current and foreseeable problems, new approaches have been proposed. The policy is carefully framed to conserve the opportunities of all our carriers for continued growth. It is directed realistically at making a new variety of services available to passengers and shippers. It recognizes that our international air services, by their very nature, must be organized on the basis of cooperation with other nations.

In my judgment, the statement sets forth a soundly balanced policy for the future. Accordingly, I have approved it to supersede the statement of international air transport policy adopted in 1963. I am directing that this new statement of policy guidance be used henceforth by responsible officials of the government in dealing with international aviation problems.

II. Statement

Public policies operate in a steadily changing technical, economic, and social environment. For sustained progress toward broad national goals we must reexamine our policies regularly to assure that relevant changes are taken into account. This is especially important in fields like international air transportation, where changes are rapid.

United States policies with regard to international air transportation were last given comprehensive review in 1962-63, as high capacity jet aircraft were coming into service. In the meantime, international aviation has expanded greatly. This dramatic growth has generated new policy questions and changed the dimensions of others. Renewed attention must now be paid to such problems as airway and terminal congestion, the liability of carriers for passengers and cargo and the cost burden of the facilities needed for safe international flight. Our policies with regard to competition need reappraisal in the light of the substantially expanded market for international services, and its projected further growth. This market has now warranted certification of two United States around-the-world carriers. It has sustained the recent strong traffic growth of the United States supplemental airlines. It is the type of market which attracted an unprecedented eighteen United States carrier applications for route awards in the Transpacific case. At the same time, it is a market in which prospects of excess capacity or other dislocations are seen from various quarters, and these concerns are made the more acute by the appearance of the wide-bodied jets and anticipation of supersonic aircraft.

The present review of United States international air transportation
Policy is an effort to take account of current conditions, and the prospective circumstances of the 1970s, in a way which best serves our fundamental interests in international air transport. These interests, as expressed in the Department of Transportation Act of 1966 and the Federal Aviation Act of 1958, are (1) to promote international air transportation that is "fast, safe, efficient and convenient... at the lowest cost consistent therewith and with other national objectives, including the efficient utilization and conservation of the nation's resources" and (2) to encourage and develop "an air transportation system properly adapted to the present and future needs of the foreign and domestic commerce of the United States, of the postal service, and of the national defense."

Clearly, such a policy must seek to achieve a number of objectives and take into account a number of constraints. It must aim to develop and maintain a sound system of international air transportation that carries people and goods safely, efficiently and economically. It should promote an expanding, innovative, economically and technologically efficient international air transport system which (1) provides that passengers and shippers share in the benefits through improved service and reduced fares and (2) assures United States air carriers a fair and equal opportunity to compete in world aviation markets so as to maintain and further develop an economically viable service network wherever a substantial need for air transportation appears.

These purposes cannot be realized until aircraft hijackings are stopped. By any standard, air piracy is reprehensible. We support measures designed to end this terrible practice.

Our international air transportation policy must recognize a number of other United States objectives or principles; these may at times be served by the policy or at times by constraints upon it. Thus, the policy must be appropriately mindful of United States strategic and political interests, the international military air transportation interests of the United States and the prospective effect of the policy on the United States balance of payments. It must take into account legitimate air transport interests of other countries and recognize that in the final analysis the policy cannot be viable without international acceptance. It should recognize that the United States historically has believed that the economic and technological benefits we seek can best be achieved by encouraging competition (the extent of competition to be determined on a case-by-case basis) and by a relative freedom from governmental restrictions. The policy must also reflect our concern about the quality of the environment, and our determination that adequate efforts are made to preserve and enhance that quality as we continue to develop the technology of air transportation.

Proceeding from the premises set out above, our review has led us to the following conclusions with regard to the central aspects of this nation's international air transportation policy:

1. The Exchange of Air Transport Rights

The basic system of exchanging air transport rights through a struc-
tare of bilateral agreements embodying the Bermuda provisions should be continued, although further studies should be made as to the feasibility of exchanging rights on a multilateral basis. The rights exchanged in these agreements should be designed both to meet the needs of the public for air transportation and to assure United States air carriers the opportunity to achieve no less than those available to the foreign air carriers. However, in the negotiation of agreements, care should be taken not to pay an excessive price for rights for which there is little near-term requirement. In order to avoid the wasteful introduction of excess capacity, caution should be exercised in granting routes on which the traffic potential is limited. The Bermuda capacity provisions have served both the United States and international air transportation well in providing a liberal economic environment for the conduct of international air services. Attempts to restrict United States carrier operations abroad should be vigorously opposed, and where required, the United States should take appropriate measures against the carriers of foreign countries restricting United States carrier operations in violation of the terms of bilateral agreements or of the principle of reciprocity.

2. Charter Operations and the Role of Supplemental Carriers in Relation to Scheduled Services

Since 1963 international charter services by scheduled and supplemental carriers have grown in importance, have been increasingly accepted by the public and now form an integral part of some markets. While the roles of scheduled and supplemental carriers are different as described in this Statement, there has nonetheless developed in certain areas competition between them. This may, indeed, increase.

We expect both scheduled services (individually ticketed and individually waybilled) and charter services (whether offered by supplemental carriers or scheduled carriers) to have important roles throughout the coming decade. The growth rates of both services make it appear likely that both will have substantial markets.

Scheduled services are of vital importance to air transportation and offer services to the public which are not provided by charter services. Only scheduled services are expected to offer regular and dependably frequent schedules, provide extensive flexibility in length of stay, and maintain worldwide routes, including routes to areas of low traffic volume. Substantial impairment of scheduled services could result in travelers and shippers losing the ability to obtain these benefits. Accordingly, in any instances where a substantial impairment of scheduled services appears likely, it would be appropriate, where necessary to avoid prejudice to the public interest, to take steps to prevent such impairment.

1 In general, under Bermuda principles each airline is free to decide the number of flights it will operate on agreed routes, subject to ex post facto review of its operations to assure that they conform to certain general principles: (1) the airlines have a fair and equal opportunity to compete; (2) the airlines of one country do not operate so as to affect unduly the operations of the airlines of the other country; (3) the air services bear a close relationship to public requirements; and (4) the primary objective of air services is to carry traffic to and from an airline's homeland.
Charter services by scheduled and supplemental carriers have been useful in holding down fare and rate levels and expanding passenger and cargo markets. They offer opportunities to exploit the inherent efficiency of planeload movement and the elasticity of demand for international air transport. They can provide low-cost transportation of a sort fitted to the needs of a significant portion of the traveling public. Charter services are a most valuable component of the international air transportation system, and they should be encouraged. If it appears that there is likely to be a substantial impairment of charter services, it would be appropriate, where necessary to avoid prejudice to the public interest, to take steps to prevent such impairment.

Additional uniformity and simplification of charter rules is desirable, and an effective charter enforcement program should be maintained.

Both scheduled carriers and supplemental carriers should be permitted a fair opportunity to compete in the bulk transportation market. We consider passengers traveling at group rates on scheduled services to be part of that market. Regulatory and promotional policies should give greater recognition to the dimensions, characteristics and needs of the bulk transportation market, as such, and less emphasis to the type of carrier that is serving that market. However, the Government should not allow enjoyment of the right to perform both scheduled service and charter service to result in decisive competitive advantages for scheduled carriers.

Licensing tools (geographic limitations, charter definitions, volume restrictions, etc.) can be utilized to adjust the competition between scheduled services and charter services. However, the widespread public acceptance of charters warrants care in taking any restrictive actions. A determination whether to impose restrictions upon charter services should consider principally the extent to which the ability to obtain frequent and regular travel would otherwise be prejudiced. It is necessary to restrict charter services because it is found that only scheduled service can provide the required convenience, and it is the charter services that make impossible the maintenance of the scheduled service. The restrictions should be the minimum necessary to have the required effect.

The foreign landing rights for charter services should be regularized, as free as possible from substantial restriction. To accomplish this, intergovernmental agreements covering the operation of charter services should be vigorously sought; distinct, however, from agreements covering scheduled services. In general, there should be no trade-off as between scheduled service rights and charter service rights. In negotiating charter agreements the continuation of and the nature of the charter rights of foreign carriers will be at issue.

3. Rates and Fares and the Role of the International Air Transport Association (IATA)

Under existing United States policy the Civil Aeronautics Board has
permitted United States carrier participation in IATA subject to various conditions and disciplines. Within that framework the Board has encouraged pricing policies, including experimentation with promotional fares, which would make air services available on the lowest economic basis to the widest possible market. To this end, the Board has also encouraged aggressive and free competition in charter pricing by the supplemental carriers.

This approach has been successful in the past five years in bringing about substantial improvement in the level and structure of North Atlantic fares, and traffic growth has been rapid. However, IATA has not made similar progress on North/Central Pacific routes, where normal fares remain well above justifiable levels and there are no individual economy class excursion fares or certain other promotional fares comparable to those in effect across the North Atlantic. The Board is handicapped by its lack of authority to regulate international rates, authority which other governments assert.

The United States should work for the broadest range of potentially profitable services designed to appeal to the broadest consumer market and based on the lowest cost of operating an efficient air transport system.

Innovative experimentation with promotional fares and varying service concepts should be encouraged to take full advantage of technological developments. The United States should continue to accept IATA as the machinery for pricing scheduled services, subject to continuing safeguards, but supplemented by increased direct informal exchanges between governments. Continued support should also be given to the establishment of IATA and non-IATA charter rates on a free competitive basis. The effectiveness of the Board in its dealings both with IATA and governments should be enhanced by vesting it with authority to regulate rates and fares between the United States and foreign points, subject to Executive review.  

4. Competition Among and Between U.S. Carriers and Foreign Carriers

Competition among air carriers, as in other areas of economic activity, tends to improve the quality and variety of service to the public, keeps prices reasonable and enlarges the market for all carriers. The concept of a single carrier or chosen instrument for the United States remains as undesirable today and in the future as in the past.

The United States should maintain a flexible policy on certificating competition among United States carriers on international routes. This policy should take into account the public's need for additional or improved air services, including new direct services from United States points other than major gateways and improved service to points abroad where this is necessary to meet the challenge of changing market patterns. At the same time, our policy on competition must take account of the economic viability of the additional or improved air services, includ-

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*Since 1966, the CAB has favored Executive notification rather than Executive review.*
ing a consideration of the probable foreign carrier competition and the new factors of charter competition and wide-bodied jets. The policy should also distinguish between point to point competition of United States carriers and services to a particular foreign country from different sections of the United States. Within this framework, there may be future route possibilities for new United States carriers, as well as incumbent carriers.

Every effort should be made to improve United States carrier competitive performance vis-a-vis foreign flag carriers in some markets, particularly the North Atlantic. Continuing to improve the quantity and variety of services in such markets would enhance our competitive standing.

United States carriers should adequately serve the international routes for which they are certified. All appropriate United States Government agencies should cooperate with the CAB in developing criteria and procedures to assure that the public convenience and necessity is served. The result should be improved United States-flag service and a general increase in economic efficiency which in the final analysis could be translated into lower costs to the public and should result in an improvement in the United States carriers’ competitive standing in international air transportation markets.

Generally, economic cooperative arrangements such as revenue or traffic pool between United States and foreign air carriers are anti-competitive and as a rule should continue to be discouraged. The United States should continue its flexibility policy with respect to other forms of economic cooperative arrangements, such as blocked-space agreements, when these are shown to be in the public interest, improve the air service network, and otherwise meet United States international aviation policy objectives.

The United States recognizes that significant benefits to the public can and do result from competition by foreign air carriers. It is important, however, to assure that this competition is fair, non-discriminatory, and in keeping with the provisions of our air transport agreements. There is some evidence that the incidence of air services by foreign air carriers from points behind their home countries may continue to increase. This situation should be kept under review and appropriate consultative and other steps taken as necessary.

5. *All-cargo Certification and Rights*

The international all-cargo services of United States flag carriers constitute an important national transportation capability serving commercial as well as national defense needs. Demand for cargo airlift will continue to increase. Further operating economics are promised by the new wide-bodied jets.

The United States cargo-only carriers are a useful force in the international air transportation market and should continue to be encouraged.
Cargo routing flexibility is an operating right valuable to both combination and cargo-only carriers. The Government should be prepared to negotiate for the right as the need arises and to anticipate the need in the negotiation of new or amended agreements. The exchange of all-cargo rights on the basis of cargo-only bilaterals is neither feasible nor desirable. The present bilateral system for exchanging all-cargo and other rights should be continued.

6. Carrier Liability

United States policy on carrier liability for personal injury or death of passengers has recently been reappraised in connection with the prospective revision of the Warsaw Convention, as amended by the Hague Protocol. The United States position embodies our primary objectives in this field: certainly, speed and sufficiency of recovery by the injured party. That posture should be maintained. The present policy of the United States concerning carrier liability to persons and property on the ground is reflected in our position with respect to the Rome Convention on Damage caused by Foreign Aircraft to Third Parties on the surface.

If the Warsaw Convention is revised in a manner which achieves United States objectives, the United States should move ahead as fast as feasible with work on the Rome Convention, and particularly with a view of expanding it to cover the liability of operators in event of aerial collisions and the liability of air traffic control agencies.

There is an ever-increasing number of operations involving internationally leased aircraft. The United States should therefore urge an ICAO review of international aviation conventions in order to determine how international leasing affects the responsibilities of States and aircraft operators.

7. Insurance

At the present time, certain foreign carriers of marginal financial resources are not required to maintain satisfactory minimum liability insurance coverage. This results in a lack of assurance for Americans that all carriers can cover losses promptly and sufficiently. A new policy should be adopted and implemented expeditiously, under which the Civil Aeronautics Board would require such foreign carriers to maintain satisfactory minimum amounts of liability insurance. The present requirement that liability insurance be carried by certain groups of carriers (United States supplemental and air taxi carriers) should be reviewed by the CAB in the near future to determine whether the minimum coverage limits are still adequate in view of inflation and possible increases in Warsaw liability limits. If it is determined that aviation insurance needs for the 1970s will severely strain the capacity of the worldwide market, attention should be given to measures, such as

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We also believe that the Warsaw Convention limits on cargo liability should be reviewed, and we support the recent recommendations of the Senate Select Committee on Small Business that the CAB investigate whether the liability of the carrier for cargo loss and damages is too low.
amendments to tax laws, that would encourage the expansion of the American market. At least to meet defense needs, the war risk insurance program should be extended.

8. Facilitation

We should continue to adopt all practicable measures to facilitate international air movement and to prevent unnecessary delays to aircraft, crews, passengers, baggage and cargo. We should continue to support collaborative efforts in the International Civil Aviation Organization to adopt and implement international standards, recommended practices and procedures dealing with international aviation facilitation, except that the ICAO endorsement of preclearance procedures is being reviewed in view of the priority program to combat smuggling of narcotics and dangerous drugs. Where United States statutes preclude compliance with such international standards, special efforts should be made to change such laws at the earliest practicable moment unless such action is determined to be detrimental to the national interest. We should urge international airlines and operators to collaborate with inspectional agencies in improving clearance facilities and associated services at United States airports while present preclearance operations are being reexamined. We should, as circumstances warrant, use the occasion of the negotiation of bilateral air transport agreements with other nations, or consultations under existing agreements, to discuss serious facilitation problems facing the United States flag carriers. Any measures taken by other nations which are unreasonable or discriminatory and which hamper or impede the international operations of United States international air operators should be strenuously opposed. We should maintain close liaison with regional aviation bodies and the facilitation programs of such groups. The post meetings between the United States and Canadian government and industry facilitation experts have been fruitful and these meetings with other appropriate countries should be supported.

9. User Charges, Fees and Taxes

Existing and proposed United States policies are considered to be essentially sound. They seek equitable recovery of federal aviation facility expenditures from special beneficiaries; in doing so, they avoid unduly burdening the general taxpayer. They seek an efficient allocation of national resources among alternate programs; in doing so, they promote needed facility implementation and long-range planning. They assist the United States in achieving reasonably facility financing policies in other States and in reaching international agreement through the International Civil Aviation Organization (ICAO); in doing so, they give greater assurance of equity for United States international air operators. By exempting State aircraft from charges, they help us to eliminate impediments to United States military aircraft movements overseas.
Finally, through active United States participation in ICAO user charge programs, sound financing policies by other Governments are encouraged; in doing so, United States international aviation overseas is more effectively protected from charging inequities. In light of the foregoing current United States policies in this area should continue to be pursued, and the United States should vigorously oppose inequitable charging of United States carriers abroad.

10. Balance of Payments

United States policy on international air transportation, as in numerous other areas, must give especially close attention and careful consideration during the 1970s to potential effects on the balance of payments.

This will require, first and foremost, an active and on-going balance-of-payments consciousness on the part of all agencies concerned.

A second major requirement is that it must reflect a balanced and comprehensive assessment of potential policy effects on the three major payments accounts which are directly affected by international air transport activities—air transportation, overseas travel and aircraft exports—as well as the effects of air cargo policies on the foreign trade account generally. In carrying out such assessment, the most important point to be kept in mind is that by far the largest part of the possible effects of air transport policies on all three of these accounts must be expected to relate to, and result directly from, their expected influence on the general growth rate of total international passenger traffic and/or the relative numbers of American, as compared with foreign, travelers making up this total traffic.

Taking account of these balance-of-payments considerations while, at the same time, recognizing the importance of encouraging economically sound growth of air transport activities as a basic objective of United States aviation policy, the following further guidelines are also recommended:

United States air transport policy during the 1970s should recognize that actions which improve the United States flag share of international air traffic also provide some benefit to the United States payments.

It should also make a continuing effort (in conjunction with, and support of, other Government and private-sector efforts on this subject) to give some extra stimulus to a faster growth of inbound, relative to outbound, travel by: maintaining a margin of necessary flexibility for, and giving sympathetic and imaginative consideration to various possible means of providing limited directional encouragements. This is especially desirable when incremental costs are lower in a given direction.
Air Transport Policy: A Crisis in Theory and Practice

BY FREDERICK C. THAYER†

Imagine yourself the mayor or manager of a urban community, attempting to handle public transportation needs within this context:

1. Two or three municipal bus lines have been authorized to engage in direct competition against each other on the major routes within the community, the municipal government being held responsible for providing subsidies when they prove necessary;

2. Two additional "nonscheduled" bus lines have been authorized to provide charter services to specified categories of citizens in and around the urban area, there being no provision for direct subsidies but only a general understanding that their operations encourage the scheduled companies to reduce fares;

3. An independent urban commission regulates the licensing of these companies and sets the fares;

4. Promotion costs have continued to escalate as the scheduled and nonscheduled lines vie for the passenger dollar, using (in addition to other devices) closed-circuit television presentations on the "express" runs between downtown and outlying areas;

5. Both scheduled and nonscheduled lines are insisting that other transportation systems, operating to meet the needs of the urban area (police, school, e.g.), constitute "unfair" competition which deprive them of needed revenue;

6. A local manufacturer of buses is arguing that unless the local government underwrites the sale of buses to still more companies in the area, an industry significant to the local employment picture will be forced to lay off hundreds of workers;

7. Your staff economist is arguing that the only way to "rationalize" the local transportation industry is to provide freer entry for new companies and force all of them to become more "competitive and efficient," thus leading to a lowering of fares.

This scenario, as unusual as it may seem, represents nothing more than a transfer to the urban environment of the existing conventional wisdom on the operation and regulation of the airline industry, both domestic and international. In both theory and practice, the conventional wisdom has bedeviled air transport policy at least since World War II. For a relatively brief period in the 1960s, when the cost of operating jet transports turned out to be lower than anticipated and thus led to over optimistic estimates of the future, the policy seemed to be pointing the way to limitless pros-

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perity. It was even possible to overlook what had happened in the air transport market after World War II, when pent-up wartime demand had proved more ephemeral than hoped. Once again, in 1970, the entire airline industry is approaching economic disaster, this time at a more breakneck pace than heretofore. This essay will predict the next step in the air transport policy crisis, undertake a critical analysis of the most recent United States statement on international air transport policy, then attempt to demonstrate the outlines of new approaches which seem necessary if the airline industry is not to go the way of the railroads.

I. THE FORTHCOMING CONTROVERSY OVER MILITARY AIRLIFT: 1958 REVISITED

When the airlines were finding it difficult to finance purchases of the first generation jet transports in the late 1950's, Paul Cherington, then acting as a consultant to Presidential adviser Elwood Quesada, pointed to the 300 per cent increase in Military Air Transport Services (MATS) capacity since 1951 and advanced as his most important recommendation that MATS should not acquire new jet transports, for that would only take more business from the airlines. This was an important salvo in the bitter controversy of those years which ultimately included several committees of the Congress, all the armed services and all the elements of the airline industry. All of the outcomes of the controversy cannot be detailed here, but it should be noted that MATS (now the Military Airlift Command, or MAC) underwent significant expansion in the 1960s (first with C141s, now with C5s), while recurring international crises, especially the Vietnam War, provided both scheduled and supplemental carriers with military traffic far beyond the Congressionally designated minimum of $100 million each year. While no official estimates have been given much public attention, the gradual United States withdrawal from Southeast Asia already has caused a situation in which the Department of Defense has relatively minor needs for commercial augmentation in the airlifting of overseas cargo.

Quite a number of the jet transports purchased by the airlines in the 1960s were specially configured for military traffic, and virtually all of those purchased have at least five years of potential productivity left in them. Unfortunately, this coincides with the coming to maturity of the MAC C141 fleet, something not actually achieved until 1968, and with the emergence of the C-5. Because the United States government continues to insist that the economic viability of both scheduled and supplemental carriers is necessary, the carriers will have no choice but to begin demanding once again that MAC flying be everely curtailed so as to provide them with needed revenue. The bearers of the conventional wisdom doubtless will

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2 On the details of that controversy, see Air Transport Policy and National Security, Part III (1965).
3 Prior to leaving the Air Force, I was involved in drawing up estimates of future needs; it was taken for granted that some sort of confrontation with the industry could not be far off. The peak needs of the Vietnam War occurred before the completion of the military airlift build-up.
support the carriers once again, carefully continuing to overlook the inherent contradictions in our overall policy approach.

This is not an attempt to insist that the level of flying for MAC transports should be whatever the Department of Defense (DOD) decides upon. There is no question but that MAC flying should be curtailed to some point considerably below the eight-hour utilization (240 hours per aircraft per month) that MAC adopted during the Vietnam buildup. The pre-Vietnam standard of five-hour utilization also may be too high, even though settling on a suitable level is indeed an intricate question. Any airlift system, for example, that acquires the pilots and facilities to operate at a high utilization rate, and then operates at only a small fraction of that rate, ends up with a great many people without anything useful to do. Arriving at a suitable figure will, in one sense, be easier than in the late 1950s but, in another sense, more difficult.

To a considerable degree the expansion of MAC was a response to the declared requirements of the United States Army for dependable airlift of its paratrooper divisions to battlefield areas overseas; this is the reason for the expensive air-drop capabilities built into both the C141 and C5. The recent trend in the Army, however, is away from paratroopers and toward the so-called “air mobile” division. The elite airborne divisions, never an important factor in any military operation, may quietly disappear in the not too distant future. Unless one insists that the nature of military operations in the future will be such as to make it mandatory that highly vulnerable C5s deliver troops to grass fields, a built-in capability which makes the aircraft seem cost-effective but which makes little sense otherwise, Army troops will be able to travel just as effectively on commercial aircraft as on C5s and C141s. The DOD may attempt to insist that only military aircraft piloted by military crews are “dependable” in emergencies, but commercial performance during the Vietnam War should have laid to rest once and for all that unjustified assertion.

The more difficult problem will be arriving at a suitable conceptualization for the Civil Reserve Air Fleet (CRAF). DOD has tended over the years to look upon aircraft officially assigned to the CRAF as something of a “merchant marine,” available for military use in times of emergency. The basic motion itself is traceable to World War II when the airlines, then a miniscule portion of national transportation capacity, carried only passengers having government priorities. As air transport has become a significant aspect of the national transportation network, it has become more doubtful that commercial transports engaged in civil business can be pulled away from that business without doing grave damage to the national economy; yet DOD has continued to insist that it is up to the carriers to find themselves profitable markets when they are not needed for military use. From their perspectives, carriers insist that DOD has a responsibility to keep them viable in non-crisis periods. This conceptual impasse continues to exist, primarily because the needs of the Vietnam War have made it possible to avoid the question. As an initial step, it might be
postulated that the CRAF is no greater in capacity at any given time than
the combination of commercial aircraft already engaged on military con-
tract flights and commercial aircraft not needed by the national economy.4
Yet DOD probably will “certify” the 747, and the supersonic transport if
it is built, for inclusion in the CRAF, not realizing that an increase in
theoretical CRAF capability implies an immediate increase in commercial
augmentation.

The thrust of the argument here is that no matter the course of the
next controversy surrounding MAC, no decision will go far toward solv-
ing the real problems of the industry. The discussion doubtless will serve
the customary purpose of avoiding the central issues of theory and prac-
tice which conventional wisdom has managed to obscure for so long. One
way of beginning to get at some of them is to look at the most recent state-
ment on international air transport policy.

II. THE POLICY STATEMENT: WONDERLAND REVISITED

The Statement on International Aviation Policy, first issued in draft
form on January 15, 1970, becomes more fascinating to re-read in light
of the numerous indicators of airline financial troubles that become in-
creasingly conspicuous. Pan American World Airways (PAA) announced
in February that its $25 million deficit for 1969 was the largest in com-
pany history,5 then announced in July that it had lost $19.6 million dur-
ing the first half of 1970 on the way, apparently, to yet another record.6
It decided not to exercise its option to purchase additional 747s, and its
president warned that the company could not become profitable unless it
were granted entry into the domestic market; meanwhile, it began quiet
merger conversations with two or three other companies.7 As other airlines
submitted requests for substantial rate increases to the Civil Aeronautics
Board, the Air Transport Association announced that twenty-six of thirty-
nine scheduled carriers had lost money in 1969 and that twelve major com-
panies had lost $43 million in the first quarter of 1970 alone.8 When some
scheduled carriers attempted to lower their charter fares, the supplementals
reacted by warning that approval would help achieve the scheduled car-
riers’ objective of putting them out of business, thus indicating that the
protegé of conventional wisdom might be able to survive only if certain
fare reductions were prohibited.9 Chairman Secor D. Browne of the CAB
attempted to reassure everyone by reporting that the airlines would not
face severe shortages of funds for at least one year, a time limit that tended
to wash away whatever optimism was left.10 Thus an approaching issue
may be the political and economic implications of returning the major
carriers to direct subsidy, something they have not needed for a decade

and a half, but it is more necessary to challenge the economic theories which have dominated public regulation for so long a time.

The Statement\(^{11}\) reflects the optimistic conventional wisdom reflected in the most recent book on the subject.\(^{12}\) While it may be unfair to even imply that the authors of the Statement agree completely with Straszheim, it may be useful to look at both together in an attempt to get at the premises and the contradictions of current policy approaches. We read of "substantially expanded market for international services" with "projected future growth." This has "warranted certification of two United States round-the-world carriers" and "sustained the recent strong development of the United States supplemental airlines." It is seen as a demonstration of strength that an "unprecedented" eighteen carriers sought route awards in the Pacific. Further improvements will follow from "encouraging competition," continuing to realize the "useful" impact of supplemental carriers "holding down fare levels and opening new markets," and seeking the "increase in economic efficiency" which will permit flag carriers to "lower costs to the public."

All of this clearly is within the tradition of the standard competitive model which, from Straszheim's perspective, "would create the best industry performance."\(^{13}\) He would prohibit any future attempts at mergers of large carriers, since they would lead to "unnecessary creation of market power."\(^{14}\) Further, he would rely upon "freer markets,"\(^{15}\) would have governments become "more active . . . in supervising . . . rate setting,"\(^{16}\) and would apply continuous pressure on the airlines to produce "fare reductions" instead of "improved service or scheduling."\(^{17}\)

To get at the root deficiencies of the model, one must ask pointed questions. Why, for example, does conventional wisdom persist in arguing that continued expansion of low-fare charter operations will lead to fare reductions in scheduled service? Certainly it will not do to merely argue that none of those flying the charters would travel at all without the lower priced service. How can it be argued on one page that entry of new companies is "relatively easy,"\(^{18}\) while it is admitted on another page that the "level of capital requirements . . . represents a certain entry barrier to jet operations?"\(^{19}\) How can we make sense of the assertion that the "growing number of economically efficient carriers represents a vested interest in avoiding further restrictions on entry," an implication that major carriers actively petition to have new competitors in their markets?\(^{20}\) How should we react to a chart which shows that "direct flying expenses decline sharply with size," followed by an admission that "economies of scale are one

\(^{11}\) All quotations are from the January 15 Draft.


\(^{13}\) Id. at 2.

\(^{14}\) Id. at 200.

\(^{15}\) Id. at 6.

\(^{16}\) Id. at 202.

\(^{17}\) Id. at 226.

\(^{18}\) Id. at 185.

\(^{19}\) Id. at 104.

\(^{20}\) Id. at 222.
possible explanation," then countered by the notion that the decline might be due instead to "plane type and route;" are not these factors involved in economies of scale? How can one accept the notion that it is "irrational" for developing countries to avail themselves of the proposed freer entry into long-haul jet markets in the absence of any definition of "rational" entry?\footnote{Id. at 91.}

A contradiction deserving of special treatment surrounds the issue of what might occur if the airline industry were removed in part from direct regulation. In referring to Richard Caves' 1962 analysis, Straszheim notes approvingly the conclusion that the de-regulation of major city pairs within the U.S. would not lead to either a sporadic or an excess level of capacity. He then concludes that removal of entry restrictions in the long-haul international markets would "probably lead to excess entry and capacity."\footnote{Id. at 29.} How these two statements can be seen as automatically consistent with each other simply boggles the imagination, especially when it is remembered that the U.S. Government has much more control over the sale of U.S. transports to foreign airlines than it has over sales to domestic companies.

It should be reasonably clear by this time that these inconsistencies and contradictions are traceable to the insistence of conventional wisdom that air transport policy can be approached only through the standard economic model of free competition, that regulation is at best a necessary evil, and that improvements (including fare reductions) can be achieved only through still further increases in direct competition between airlines. Yet there is considerable evidence to suggest that major airlines, especially international ones, do not fit and cannot be made to fit the classic competitive model.

III. Oligopoly and Airline Behavior

If, as admitted by conventional theorists, the cost of establishing a new long-haul jet airline is high enough to prohibit widespread entry, then the industry is likely to continue to be dominated by relatively few companies. As a first step, then, it might be postulated that we are dealing (both domestically and internationally) with something that is both an oligopoly and a regulated industry. We have no choice but to briefly examine the characteristics of both.

Since unregulated oligopolies display tendencies to become monopolies, economists usually argue against any reduction in the number of companies in such an industry. As Gardiner Means has noted, economists have argued that spark plug producers not be permitted to consolidate five companies into three, but without any reference to the system needs of spark plug companies.\footnote{G. C. MEANS, PRICING POWER AND THE PUBLIC INTEREST 166, 67 (1962).} As noted above, the conventional approach to

\footnote{Id. at 190. On the proposal for de-regulation, see R. E. CAVES, AIR TRANSPORT AND ITS REGULATORS 447, 49 (1962).}
airlines argues against most mergers, and does so without any reference at all to the efficiency needs of airline systems themselves. Yet anyone even vaguely familiar with the structuring and functioning of such operational systems can testify without hesitation that it never is “rational” (from a systems perspective) to have more than one company operating in any single market, a definition of rationality never considered by conventional wisdom. It is implied instead, as by Straszheim, that freer competition will put extreme pressure on marginal operators, presumably driving them out of the market. Now, this hardly can be expected to happen in the domestic scheduled industry (where “grandfather” carriers remain protected), in the supplemental industry (where conventional wisdom assumes the companies are viable), or in the international industry (where national interests make it impossible to accept the demise of virtually any carrier). This would seem to permit conventional wisdom to point once again to the evils of domestic regulation and international politics. Suppose for the moment, however, that the airline industry was an unregulated oligopoly; how could it be expected to behave?

Any unregulated oligopoly is faced with an odd set of economic rules. Economists tend to favor price competition which holds, in theory, that a marginal company will withdraw. But the same economists also argue against any reduction in the number of companies. The contradiction leads, of course, to the adoption by such oligopolies of an “informal convention” which abolishes price competition. Companies tacitly agree that mutual survival is an objective, and they involve themselves in either administrative pricing, old-fashioned price-fixing, or what Means has called “target pricing,” designed to produce profits that are higher than could be earned in capital markets. It has not been uncommon for such oligopolies, e.g., the automobile industry, to use as a target profit twice the possible return on capital investment; this is the way consumers are made to provide capital without receiving shares of stock in return. Because these large companies are geared to long-term development and production plans, prices cannot be adjudged on a day-to-day basis. The next question, of course, is the precise forms of competition that emerge from this process.

In typical oligopies, companies adopt the “principle of competitive waste;” the most common manifestations are excessive distribution units, auxiliary services and prizes for customers, and truly massive advertising campaigns. As the costs of these phenomena mount rapidly, price reductions become impossible; potential profits are converted into still more

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26 Means, supra note 24 at 266, 68. If one reflects for a moment, the scope of the theoretical problems comes quickly to mind. When the government seeks competitive bids from a group of large companies, as for the manufacture of military weapons systems, it is considered improper for the companies to consult each other. Yet if one of the companies consistently wins the competition and begins to threaten the existence of its competitors, the trend toward market domination is equally feared. If the government “spreads the business around” without paying strict attention to the prices bid, that result is condemned also. Where the government is not involved at all, the failure of any very large enterprise is viewed as a social and political problem which warrants corrective action. No answer to the dilemmas is possible here; it is enough to point to the conceptual impasse.
irrational capacity and advertising. Retail prices are reasonable when compared with costs, but the costs themselves are indeed unreasonable if viewed in broader perspective. While this description is easily recognized in terms of gasoline stations, automobiles, and tobacco, it is—startling enough—remarkably the case in the regulated airline industry. In other words, both domestic and international regulatory policy has produced an unusual phenomenon which might be called “government-promoted competitive waste.”

It doubtless is the case that conventional wisdom would argue that it is merely coincidence that a regulated airline industry resembles in large measure any unregulated oligopoly. To argue the issue in detail is to become involved in the same type of discussion which has surrounded the International Air Transport Association; is it or is it not a cartel? It acts to “fix prices,” but it is also an international organization of a rather standard sort, for practically all its members (save U.S. airlines) are nationalized companies. Even if we are dealing with only a coincidence, however, it should be one which merits an intensive study it has yet to receive. The principal question might become one of determining how the airline industry differs from an unregulated oligopoly and, at least one the surface, the only difference appears to be in the setting of prices.

The analyst who is not an economist must be a bit wary of the extent to which he carries his analysis. Even so, it seems fair to assert that classic economic models have yet to account for the overall behavior of oligopolies and, more to the point, for the relationship between competitive waste and retail price. While Mr. Means sought to find means of keeping the target profits of unregulated oligopolies within reasonable limits, neither he nor anyone else has been able to develop an appropriate mechanism. While regulation of the airlines doubtless has kept profit under control (or nonexistent), it clearly has not been able to cope with competitive waste, especially on the international scene. Indeed, if one pushes the notion of irrational capacity, it is possible to argue that no airlines can afford to fly with fewer empty seats than its direct competitors—for this would offer less flexibility to its passengers. Yet the removal or partial removal of regulation could only lead to a form of airline behavior more completely in accord with that of unregulated oligopolies, i.e., target profits on the order of those set by auto manufacturers. Even the IATA does better than that.

Most theories of monopolistic competition, which deals with the behavior of oligopolies, do not contemplate a regulated industry, and many approaches to public regulation assume the existence of natural monopolies (perhaps the municipal bus company?). It is understandable that economists hoped that in pushing hard for free competition, they would realize the benefits of both competition and regulation. What we have achieved instead is a combination of disadvantages.

One can only sympathize with an overworked CAB and Department of State, forced to search continually for “rational” standards where none can be found. Domestically, our classical theories ignore the competitive
waste (services, advertising, duplicate facilities) induced when any city-
pair shifts from a single to a multi-company pattern and the same theories,
moreover, do not even permit us to account for innovations such as the
Eastern Shuttle. This device, virtually impossible to operate with real
efficiency in other than a monopoly market, at least permitted the com-
pany to spend money on stand-by planes and crews instead of traditional
advertising. Conventional wisdom would insist upon the maximum in
direct competition in the Northeast corridor, thus precluding a shuttle-
type system.

Internationally, the CAB never can have truly effective authority in
view of Presidential control of all major decisions. Further, the interna-
tional system as a whole has been largely dependent upon the separate de-
cisions which promote the sale to foreign airlines of U.S. built transports.
The vested interest thus acquired makes it inevitable that the U.S. permit
entry into markets which enable those airlines to pay on their loans. In
a sense, the Export-Import Bank has acted for some years as a promoter
of freer entry, a factor often officially stated when new routes are awarded.
To argue that it is “irrational” for developing countries to enter long-haul
markets, then, without addressing in detail the issue of the aircraft manu-
factoring industry, is to undertake an exercise in vacuity, even economic
colonialism. The CAB, forced to defend its actions in terms of conven-
tional wisdom, has little choice but to insist that when the U.S. forces all
international airlines to install in-flight movies, it is not adding frills
which unnecessarily raise travel fares—when that is indeed the case. In-
ternationally, and domestically, the costs of CAB processes continue to
escalate, still further diminishing the opportunities for fare reductions.

The most distressing aspect of all this is that conventional wisdom is
prevented by virtue of its imbedded assumptions from even recognizing
its own contradictions. One principal devices for avoiding the tough ques-
tions has been the disguised subsidies provided many carriers in the form
of something over one-half billion dollars each year in military contracts.
When these are in danger of declining as we withdraw from Vietnam,
and when the travel market begins to level off, especially at the beginning
of the second jet age, it becomes increasingly clear that we cannot be too
far away from a time when there will be no choice but to provide direct
subsidies for airlines in direct competition with each other. Unless some
changes are induced, we will shift from “government-promoted competi-
tive waste” to “government-subsidized competitive waste.” Is there an
alternative to using public funds to pay for airline television commercials?

IV. A Revision to the Conventional Wisdom

When I first disputed standard approaches to regulation a few years ago,
it was necessary to return to the early 1930’s to unravel the twisted skein
of air transport policy. Most studies begin only with the establishment of
the CAB in 1938, but this is inadequate to an understanding of the situa-
tion. One need not defend every aspect of the actions taken by Hoover’s
Postmaster General W. F. Brown to conclude that his rearrangement of the airline map in the early 1930's was both necessary and reasonably rational. The record is clear that far from being a conspiratorial dispenser of "spoils," he forced the companies then in existence into mergers which conformed to a national route structure he had developed through systematic analysis. Without his intervention, for example, a coast-to-coast probably would not have emerged in advance of the development of airplanes capable of non-stop cross-country flight. The Roosevelt Administration, not amenable to anything done by its predecessor, quickly threw out the entire solution, and the CAB emerged only after four years of high confusion. It remains a tragedy that the custodians of conventional wisdom have chosen to ignore or deny the carefully assembled evidence that has been available for so long.\(^3\)

Domestically, a new rationalization of route structures hardly could be more necessary. At least some sort of beginning must be made in the direction of removing the excessive direct competition between companies in so many markets. There probably is not time to await the laborious process which begins with companies delicately exploring various sorts of mergers, arriving at tentative agreements, applying for CAB and government approval, undergoing lengthy hearings and court tests, then starting over again as each proposal runs aground for one reason or another. It would be much more sensible to begin with a CAB-Department of Transportation Systems design for a national route structure, based upon the premise that "rationalization" requires as a going rule that, with extraordinarily few exceptions, each city-pair be serviced non-stop by a single company. This would provide for considerable competition, but airlines would not be competing for the same non-stop passengers. Acceptance of the new system design and rearrangement of the existing companies would require the establishment of a new policymaking system, composed of appropriate public agencies, the carriers, and consumer groups.

There are numerous reasons for concluding that such an approach probably will not be accepted in the near term future, unless the developing crisis accelerates in such a fashion as to demand innovation. Short of that, it would appear that some rearrangement of the regulatory process might at least serve as a starting point. While companies cannot be expected to voluntarily apply for withdrawal from markets already assigned them, individual city-pair investigations could lead to CAB terminations of some route assignments. If the CAB were to act upon the essentials of oligopolies in operation, moreover, it could launch its own campaign against competitive waste. There should be ample room within the regulatory process for clamping down on luxury services, unnecessary aircraft refurbishing, costly advertising, and for determining the number of cabin attendants on grounds of safety instead of food services. It should be possible to design test models for the equivalent of Eastern Shuttle operations.

\(^3\) The evidence, easily available from 1942 on, is summarized in THAYER, AIR TRANSPORT POLICY AND NATIONAL SECURITY 9, 16. Conventional approaches blithely use the term "closed spoils session" and, of course, without documentation. CAVES, supra note 23 at 384.
on several routes, again based on the premise that a single carrier would fly each route for some designated period. If the overall system gradually began to rearrange itself, the CAB would find itself increasingly engaged in the management of indirect competition; carriers ultimately would be judged on their performance across comparable routes. The gradual removal of the adversary processes of CAB regulation would itself lead to additional cost reductions.

Internationally, the problems are much less tractable, for multiple competition may remain inevitable across numerous routes. The first step, of course, would be to wipe out direct competition between U.S. flag carriers, and to follow that by withdrawing supplemental carriers from international operations, both within Presidential prerogatives. It would be necessary to take a much tougher look than we ever have at our own export promotion policies. There should be greater effort at exporting aircraft useful for domestic development in other countries, and some reduction in sales of long-haul jets to both advanced and developing countries. The U.S. may have no choice but to explore with other countries such possibilities as mutual withdrawal from certain markets, or agreements which allow for only one-way service in other markets. In the remaining markets suffering from multiple competition, it seems more sensible to launch as indirect attack against existing fare levels by concentrating on step-by-step elimination of competitive waste.

Because direct competition between companies makes it impossible to achieve complete elimination of competitive waste, international fares may never be comparable to domestic ones. This is preferable, however, to any attempt to rationalize the international route system so as to eliminate direct competition. But even the minimal attack on competitive waste requires that conventional wisdom be turned around; lavish services are not simply a by-product of high fares and excessive profits but are rather the normal behavior pattern of oligopolies, complicated in this case by the additional pricing objectives that each government may have adopted as a part of its foreign policy.

It makes little sense to go further in attempting to outline the specific dimensions of a revised domestic and international air transport system. I have argued before that a U.S. flag carrier system of three carriers might be feasible, one to operate in the Atlantic, one in the Pacific and the third in Latin America. This might avoid the pitfalls of the single "chosen instrument," provide a pattern where one carrier could be compared against another, and end the direct competition between U.S. carriers. Pan American, barred from domestic operation all these years on largely emotional grounds, doubtless would remain one of the international companies, and the other two would be removed from domestic operation. That argument seems less important now than a full-scale attempt to understand the nature of the economic phenomena at work so that incremental changes in new directions can be at least become feasible. As this is written, for example, a mini-debate has been underway for some time on the question
of wage and price controls, especially in the bellwether industries. As we gradually begin to understand that unlimited waste in all areas no longer can be tolerated, surely it is time to take up the challenge posed by Gardiner Means also a decade ago. Price controls, for example, are simply another way for conventional wisdom to avoid an intensive study of key phenomena such as competitive waste and target profits.

If we badly need to develop new conceptual approaches to the study and regulation of oligopolies, regulated or unregulated, then, as indicated earlier, we need just as badly to re-examine in detail air transport policy history. The overoptimism which followed World War II led to CAB-imposed fare reductions and support for nonscheduled airlines; the result was a near disaster, and it forced quick restoration of higher fares. As for the nonskeds, now the supplementals, only the Berlin Airlift, the Korean War, and similar emergencies kept them in business and allowed them to convert to jets. Their conversion was accomplished through that appears to have been tacit understandings on the part of all concerned that military revenues would not be cut off. It will not be easy to force them into mergers with the flag carriers, but anything short of that does not offer much hope. It remains as difficult as ever for a company to sustain itself solely on charter operations not based upon an underlying scheduled operation which permits efficient utilization of equipment.

Conventional wisdom has supplied us with impressive tools for macro-management of an entire economy, but it has far to go before we can be confident of the conceptual models it employs for looking at oligopolies. I do not intend to minimize the extent of the task which lies ahead. A good bit of the traveling public has been indoctrinated to the point where it believes that widespread competition is efficient in all cases, and that significant choices can be made between competing airlines; it will take time to drive home the extent of the costs associated with that competition. The supplementals, hardly definable as 'small business' any longer, still retain the misleading popular image supplied so willingly by conventional wisdom. Should a revised regulatory process emerge, it will be a constant challenge to keep companies innovative by comparing them against each other. In the absence of revision, however, we are left to contemplate the picture of two airlines competing for the same non-stop passengers, both being pair direct subsidies, both refused permission to merge with each other, both losing parts of their markets to supplemental carriers. Is it not time to at least accept the possibility that the phenomenon at hand deserves a new look?
Power To Spare: A Shift in the International Airline Equation

BY ROBERT L. THORNTON†

I. INTRODUCTION

The structure of the international airline system has taken its present form because of a set of interlocking power equations. During the time in which international commercial aviation has been a factor, changes in these equations have taken place slowly. Today, because of recent or impending important changes in United States national needs and policies there promises to be major changes in the factors which shape the industry. These changes can alter dramatically the participants, systems and nature of competition within the international airline sphere. It is the purpose of this article to explore the nature of these changes in the light of the realities of airline power.

II. A POOL OF POWER

International airlines need assistance from their governments if they are to be viable. Governments must negotiate with other states to secure foreign route authority, landing rights and fare and frequency schedules for the benefit of their airlines. A state ordinarily must grant something of value to foreigners to secure these desired airline concessions.1 On the other hand, foreign airlines will need concessions too, so that the first state will have something desirable to grant in exchange for concessions for its national airlines. To the extent that things gained and things given away from all parties are within the international airline sphere, commercial air operations are a closed system, in which the relative position of a flag airline will depend on the nature of the market for commercial air travel between its home state and foreign countries and on the relative efficiencies of the national airline systems.

There is, however, no political or economic reason why the concessions which are bargained for need be from within the commercial airline sphere. In practice, states have very frequently bargained through concessions in an unrelated area for favorable treatment for their airlines, and, alternatively, have sought non-airline advantages by offering traffic rights to a foreign commercial airline.2,3

Among the things secured by states through giving a competitor profit-

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2 F. Thayer, AIR TRANSPORT POLICY AND NATIONAL SECURITY 78 (1965).
3 Unused.
able airline traffic rights have been submarine bases, orders for military or commercial aircraft, military alliances and even a railroad in Angola. The Bermuda Agreement itself can be considered to have been a “package deal” in which a British dollar loan, Commonwealth telecommunication rights and commercial airline rights were negotiated simultaneously between Britain and the United States.

In reality, a state’s power can be looked upon as being a pool of trading strength, contributed to by many segments of that state’s political, military and economic operations. This pool of power is then tapped to provide the bargaining strength with which the state’s foreign policy objectives will be sought.

States will place differing priorities on their various external objectives. There is no reason why power contributed by one sphere need match the power used in securing the objectives needed in that sphere from a strictly commercial airline point of view, the bilateral agreement will appear to be an unbalanced bargain, with a broader balance achieved through adding things to the bargain which do not concern commercial airlines. Thus, it is possible that in one country more commercial airline operating rights will be granted to foreigners than are received in return.

States with limited airline objectives but with valuable airline rights can be expected to draw upon their bargaining strength from these rights and to use it to secure non-airline objectives. Until recent years, Portugal used its considerable bargaining strength in the commercial airline field to secure outside objectives rather than to enhance the success of its national airline, Transportes Aereos Portugueses. Iran, with a strong traffic generating potential in Teheran, has used its resulting power for non-airline purposes, thus limiting its ability to secure favorable rights for its flag airline. To a lesser extent, Britain has placed British Overseas Airways Corporation (BOAC) at a severe traffic disadvantage in ex-British African colonies in order to obtain continuing economic and political preferment in broader spheres. It should of course be obvious that the reverse situation is also true, since the “other side” of each of these bargains has used non-airline power to secure an airline objective. The Netherlands, for example, which regard the Royal Dutch Airlines (KLM), as an extremely valuable foreign exchange earner, can generally be expected to support its airline with concessions from other spheres when the need arises.

Although a state’s leaders may have acted wisely in balancing its overall need against its total power, it can not be expected that operators in the airline sphere will accept willingly a granting of greater airline concessions

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4 Air Transport Agreement with Portugal Revised, U.S. DEPT. OF STATE BULL., 103 (July 13, 1947).
7 Results of the Anglo-American Civil Aviation Conference, U.S. DEPT. OF STATE BULL., 302 (Feb. 24, 1946).
to foreigners than are received in return. News that a foreign airline has received a valuable concession, which is not matched by a reciprocal airline concession of equal value, will be met with well publicized accusations by airline officers of “giveaways” even though things of importance have been received by the state elsewhere. Where the balancing factor is not only outside the airline sphere but is also kept from public view, these outcries may seem justified to that state’s general public. This is commonly the case where the foreign concession gained is not releasable for military security reasons, or is one that is politically sensitive. Negotiations which the United States made with the Scandinavian countries in the past were criticized as poor bargains at the time. Only when the strategic importance of Greenland to the U.S. was recognized later did the logic of the agreement become clear, although, even then, the United States airline executives remained unhappy.

For those states in which the national airline is controlled by the government, as is common over most of the world, complaints of giveaways can be prevented, or at least muted through direct pressure on the airlines’ managers. Where the state’s airlines are independent businesses, responsible to their own stockholders in the private sector, the cries of anguish over presumed unequal bargains may become a serious political problem.

The United States is the world’s principle believer in independent airlines, and it is the greatest dealer in power. It is no surprise that its international airline negotiations are watched closely by the private operators who run its national airlines. It is also not surprising that few of its bilateral agreements have been regarded with favor by the United State’s private airline managers. The cry of “giveaway” has accompanied almost all announcements by the United States State Department of an airline agreement. Bilateral agreements with the Netherlands, West Germany, Britain, Japan, Mexico, Scandinavia and many other states have all been criticized violently, both in the press and in Congress.

To determine whether these agreements were truly giveaways which did not receive an equivalent concession elsewhere requires an analysis of the nature and strength of the United States commercial bargaining power, and of the relative value of United States’ operating rights as opposed to those of foreign states.

III. The Sources of Power

The basic source of power of the commercial airline industry is its airline traffic generating capacity. States recognize the potential profit and foreign exchange earnings which come from passengers or freight travel-

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ling to or from points within their boundaries. States will grant foreigners rights or concessions to secure for themselves or their citizens a portion of this revenue. Since by international convention, a state has full control over which airlines will serve its territory, each state has control over the use of the power resulting from traffic generated within its borders. The right to serve a traffic point then becomes valuable property, fully within the control of the governing state, and capable of being granted or withheld in accordance with governmental desires.

There are, of course, two ends to any international journey, and the power resulting from traffic generation is shared between the state of origination and the state of destination. While there is a tendency within states which provide large numbers of international travelers to emphasize their role as traffic generators, the fact remains that without an attraction at the other end of the journey, no travel would take place. There are, however, at least two factors which act to reduce the power which might be expected to accrue from being a destination point. Both of these factors are examples of substitutability.

The first of these factors arises when the destination of a journey is surrounded by alternate destinations, all interconnected by a heavy transportation network. In this case, the bargaining power of any one airport acting alone may be severely reduced. In bilateral negotiations, the sending state can successfully deny the receiving point reciprocal traffic rights, thus eliminating any direct connection, without much damage to its own traffic. Its own originating traffic will substitute an alternate, nearby destination, and, given easy transfer facilities, arrived at the originally intended destination with little delay and without a direct connection with the recalcitrant state. As an example, given a bilateral statement and no agreement the United States and Belgium, traffic intended for Brussels would simply land in the Netherlands, France, Germany or Luxemburg and transfer by extremely easy methods to Brussels, either by rail, bus or third country air. It would be difficult, perhaps impossible, for Belgium to prevent substitution of this type except by denying entry to individuals carrying a particular passport—a drastic decision with implications far beyond the airline industry.

The second form of destination substitution unlike the first, applies primarily to tourist travel. Tourist travel is highly competitive and quite valuable to many states. Originating tourist travel is tied to the state of which tourists are citizens, but the traveller has a wide choice of places to visit, most of them very anxious to receive him. Thus, for a tourist receiving state to limit travel between it and a tourist generating state in order to bring negotiating pressure on the generating state would harm the outward bound traffic of the source state little, as tourists will go elsewhere. Such action would, however, be unfortunate to the would-be tourist receiving state. A classic example of this is Cuba. Closing of Cuba-United States traffic has hurt Pan American Airlines not at all, as potential

\[14\] H. Hotchkiss, A Treatise on Aviation Law, Appendix A (1938).
Havana traffic went instead to a variety of alternative tourist attractions. To Cuban airlines, the effect was disastrous.

The fact that tourism affects several industries (hotels, restaurants, ground transport) in addition to the airline industry further restricts the freedom of action of the government of a tourist attracting state. Attempts by a government to increase the share of the market enjoyed by its flag airline would be politically impossible if even a temporary reduction of tourist travel resulted. Indeed, in some countries it is possible that profitability of a flag airline might be sacrificed in order to increase tourism were that necessary to get the cooperation of powerful tourist generating states. It is for this reason that the new states in the Caribbean area (Trinidad, Jamaica) are not likely to develop flag airlines which compete strongly with Pan American, British Overseas Airways or Royal Dutch Airlines (KLM), even though their tourist drawing power is great.

Geography provides somewhat of a complementary factor which modifies the power derived from traffic generating capacity. This is evident in the earlier discussion of substitutability of destination. A small state surrounded by a number of other states will have difficulty in exploiting the bargaining potential of even the greatest travel attraction. On the other hand, a country such as the United States is not easily subject to destination substitution because of the added cost, inconvenience and restrictions on choice of coming to, for example, St. Louis or Denver by switching airlines in Mexico or Canada.

The bargaining weaknesses caused by geographic substitutability is most evident in Europe, where it is made even more serious by tourism patterns, which generally result in multi-destination “Grand Tour” type itineraries within Europe. Thus, by rearranging travel itineraries, a tourist can eliminate any one country from his original landing or last take-off schedule, merely by making other countries his point of original arrival and departure from the continent. He need not, of course, eliminate his visit to the recalcitrant country, but merely make it an intermediate point.

A second aspect of geography is the opportunity which great distances and a large but diffuse market offer to segment a country into isolated markets, each of which can be bargained for separately. Again, the United States is the principle recipient of this advantage. Once France has traded for rights in Paris, or Germany for rights in Frankfurt, or the Netherlands for rights in Amsterdam there is little more of value to offer. The United States, on the other hand, can bargain away New York and still have extremely valuable right to offer in Chicago, Seattle, Miami, Los Angeles or Houston.

A last effect of geography arises from the need for enroute navigational aids, weather information and fuel stops. Where distances are great and ranges limited, aircraft may require a land base to provide them with assistance. At one time, this need was extremely important, but increased

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aircraft ranges and the self sufficiency of today’s aircraft have narrowed the number of important bases. The Azores, Iceland, Goose Bay, Canada and the British Isles have declined greatly in importance as enroute bases. The most important remaining key bases are Hawaii and, to a little less extent, Anchorage, Alaska. Most other enroute bases could be eliminated, or equivalent facilities developed nearby in another country. The United States has, therefore, the greatest gain in bargaining power from her possession of geographically strategic enroute bases.

It is an interesting sidelight that possession of geographically strategic enroute bases was at the time of the Chicago Convention in 1944 the bargaining strength which made Britain influential. Since then, technical change and the fragmentation of the British Empire have severely limited Britain’s airline negotiating power.  

IV. CONSTRAINTS ON AIRLINE POWER

Any objective external to the airline industry can limit airline growth if it has a high enough priority. Each national objective competes with all other goals for the available power. Some of the non-airline objectives, however, are so closely tied to the commercial air industry as to be nearly inseparable from it and are treated here as offsets to power, rather than uses of it.

The first of these offsets is a commercial aircraft manufacturing industry. No state needs a commercial aircraft industry within its borders to assist it to airline success. Aircraft are an international commodity, and can be bought and supported by nearly any country from any country which makes them. It is definitely conductive to airline success to buy and use aircraft which can compete well with the best available, both from viewpoints of cost and passenger attractiveness. Aircraft manufacturing is, however, a valuable asset to a nation for a variety of reasons. Sales of commercial aircraft to airlines may be important to the viability of an aircraft manufacturing industry within a state. For this reason, a state may force its airlines to buy the product of its manufacturing industry, regardless of the quality of the product. Where the domestically manufactured aircraft which must be bought are not equal to the best, a flag airline may be forced to bear a severe burden.

There are only three states in the free world which produce big commercial aircraft. These are Britain, France and the United States. The United States airline industry has not suffered from government pressure to “buy American,” because its own manufacturing industry has generally been able to match the best any one else can do. France, likewise has produced competitive aircraft, although a few unattractive French built models have been forced on French airlines. On the other hand, the British airlines, British Overseas Airways and British European Airways, have frequently, perhaps usually, been forced to buy and operate aircraft which were considered by airline management to be inferior to others.

The VC 10, the Trident and the Britannia are all in this class.

A state's aircraft manufacturing industry, regardless of its quality, can in another way force its government to grant traffic right concessions. Where two competitive aircraft are available from different manufacturing countries, a third state may offer to buy its needs from that manufacturing country which gives it the best offer of traffic rights. The Netherlands has frequently used its status as a good customer of Douglas Aircraft Corporation as a bargaining ploy when seeking United States traffic rights. Such tactics are, naturally, most effective where some third country offers a similar aircraft of equal attractiveness to which the bargaining state can turn if the target state refuses to come thorough.

One other factor which might persuade a state to take steps which are not in the best interests of its national airlines is worth mentioning. Generally, in the preceding discussion, we have presumed that the financial success of national airlines was the most important objective in the commercial airline sphere for the world's powers. This need not be so, since ultimately states are charged with looking after the general welfare of their citizens as a first objective. It is quite possible that a state will find that financial success of its airline does not completely coincide with assuring the best airline service for passengers. Where airline passengers carried by a national airline are primarily citizens of the same state as the airline, it is possible that the government will decide, where their is conflict, in favor of better passenger service and against increased airline profitability. Where a national airline is carrying a large percentage of foreigners as passengers, the decision may be reversed, since few states feel an obligation to serve foreigners as well at the expense of domestic airline profitability. It might be expected for example, that for Royal Dutch Airline, Scandinavian Airline System and Swissair, airline profitability would be the dominant objective since they are predominantly merchant airlines, carrying a heavy load of foreigners. On the other hand, the United States international airlines carry principally United States citizens, and passenger service should, theoretically at least, be uppermost in the minds of United States officials.

The place in which passenger service is most likely to come into conflict with profitability is when decisions are to be made as to the degree of competition which is to be permitted on an air route. Economic theory states clearly that the monopoly power which comes from limiting competition will usually increase profitability but at a sacrifice in consumer service.

An examination of the policies followed by different governments gives some support to the above discussion. The United States, which should be the country most interested in enhancing passenger service, is the world's outstanding advocate of competition. Most of the rest of the world, hauling other nations' citizens around, limit competition sharply in a variety of ways. Pooling, frequency controls, chosen instrument or non competi-

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18 S. Wheatcroft, Air Transport Policy ch. VI (1964).
tive national airlines, all are normal to the non-United States airlines. The resulting conflict, where United States traffic is involved, between the Civil Aeronautics Board (CAB) and the world has been a continuing feature of the post World War II international airline picture. The CAB, quite naturally, has preferred that the necessary degree of competition be achieved by adding new United States airlines to existing international routes. However, where foreign governments successfully resisted adding new United States airlines, there have been suspicions that the CAB would have accepted additional foreign competition to assure good service, even though United States airline profitability was adversely affected.

V. THE RELATIVE BARGAINING STRENGTH OF THE UNITED STATES

An examination of the sources of airline power discussed above, brings out the tremendous strength of the United States in power derived from international airline rights. In almost all categories the United States stands out as the world's strongest bargainer, frequently by a very wide margin. Her citizens fly everywhere on the world's scheduled airline routes, and form the largest group by far. She is predominately a sender of passengers, and she is well protected from substitution, by travelers, of other itineraries which omit United States cities. Geographically, she has many separate markets, each valuable in its own right, thus strengthening her hand. The world's two most important refueling stations, Anchorage and Honolulu are both within her boundaries. Only because of her government's possible preference for passenger welfare when it is in conflict with airline profits is there any weakness.

Given this tremendous bargaining strength, it would be expected that the United States international airlines would have the finest route networks of any country in the world. Her customer service objectives of low rates and stiff competition should have been achieved easily without loss of traffic rights for her airlines.

A close analysis of the facts, however, does not support this hypothesis. While United States airlines do have strong route structures, they are little, if any, stronger than several major competitors. British Overseas Airways, Air France, Royal Dutch Airline, Scandinavian Airline System and Japan Airlines have route structures which should be as profitable as are Trans World Airlines and Pan American's, even taken together. Further, the strong United States position against restrictions on operating frequencies has been successfully challenged. Italy has been able to restrict United States airlines capacity into Rome, Japan has successfully limited United States airlines access to Tokyo and Australia and New Zealand appear to be in the process of restricting frequencies into their cities. Britain has been able to delay Trans World Airlines' route east from Hong Kong. To make matters worse, recent negotiations have seemed to offer

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lucrative pieces of the United States market for foreign rights of much less value.

VI. THE EXTRANEOUS CONSIDERATIONS

The reasons for the apparently poor showing of the United States in traffic rights bargaining is not hard to estimate. As might be expected, it is clear that ever since World War II the United States has been using her bargaining power in the airline sphere as a means of securing foreign agreement to things which have little to do with the airline industry. Obviously these objectives have a higher priority in the minds of policy makers than does the success of the United States airline industry, or even of better airline service for United States citizens. The overriding objective has been national defense, or its stated equivalent, anti-communism. The United States considers the Soviet Union and its tool, international communism, to be the major threat to her safety.

Hard evidence of the priority placed on defense needs is hard to produce, given the confidential nature of bargaining details and the domestic political problems which are generated by the use of bargaining power in sectors other than those generating it. Nevertheless, some evidence is available. For example, in 1956, President Eisenhower admitted the importance of the "Netherlands pulling its weight as a sound member of the Western alliance" in accepting those words as a reason why KLM should be given desired route concessions in the United States. As another example, the Icelandic carrier Loftleider's continued flouting with United States government approval, of the fare controls over the North Atlantic can only be explained by the urgency which attaches to defense bases in Iceland. Added examples depend on joint occurrence for their confirmation, but are nevertheless persuasive. SAS received its valuable Polar route authority with essential fifth freedom rights at Anchorage at a time when Greenland bases had become extremely important to the defense department.

Lufthansa's lucrative initial route authorizations to the United States can best be explained in the context of the West German military contribution to NATO. The Lufthansa route awards were defended in a congressional inquiry into the subject in secret session. Recent willingness of the United States to accept capacity restrictions on flag flights to Japan and the Southwest Pacific countries is most probably in part a response to defense needs in Southeast Asia.

This preeminence of national defense over airline profitability has resulted from the post World War II importance of friendly foreign government assistance in implementing the chosen defense strategy. There are two aspects to this foreign dependence.

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26 W. Hartley, Icelandic Airline Lures the Prop Set with its Cheap Fares, Wall Street Journal, Feb. 15, 1968, at 1, col. ___.
The first aspect is a result of technological factors. From 1949 until about 1962 the United States Strategic Air Force required foreign bases and other foreign assistance to reach possible targets in the Soviet Union effectively. Faced with this overriding need, in an environment in which aggression was feared more by the United States than by its allies, selected key nations found themselves in extremely strong bargaining positions. Italy, Spain, Portugal, the United Kingdom, Japan, the Netherlands and several other states all were able to bargain effectively for a variety of concessions from the United States. Airline traffic rights were among the things sought by foreigners in exchange for military bases, and were commonly obtained without equivalent United States airline routes.

The second aspect of the U.S. need for foreign agreements is probably partially a result of the first one. It is the United States desire to pursue a forward strategy. U.S. policy called for maintenance of non-communist governments in all states not already communist. This required strong, economically healthy governments throughout the free world. It was also assumed to mean governments friendly to the United States. Thus, when a foreign country begged for favorable treatment from the United States government for their airline, the United States, fearful of weakening a friendly government or of restricting the foreign exchange earning power of the seeker, felt obliged to assist.

VII. A Change in Circumstances

Within the past several years, there have been changes in the ultimate United States needs for foreign support, and there seems to be changes underway in the United States attitude toward a forward strategy.

Foreign bases in Spain, Britain, Portugal, France and the Netherlands are today far less important to the United States strategic forces. The arrival of the long range B-52 as a replacement for the uncomfortably short range B-47 was the first development, and increasing reliance on ballistic missiles, launched from the Continental United States or from mobile platforms, advanced the process of freeing United States military planning from reliance on agreements reached with foreign governments. There remain, of course, important needs of the military planners to meet with foreign agreements, but these are very much lower on the list of defense priorities than those which have been superseded. The reduced value of these United States needs as bargaining counters has become painfully obvious to some foreign governments already, particularly, for example, to Spain and to Libya.

Two wars, in Korea and Viet Nam, have brought the United States policy of forward defense into question. The increasing unwillingness of the United States people to pay the price required to keep friendly governments in power on the periphery of the communist nations may shortly lead to a curtailment of United States internationalism. Should the forward strategy be dropped or drastically modified, the day to day operating attitudes of the United States government toward many foreign coun-
tries can be sharply changed. Very firm positions will be possible for the United States in a wide variety of formerly subordinate arenas, including that of airline rights, as the overriding defense priorities disappears.

There remain at least two very strong United States defense needs which will continue to drain United States power away from objectives of providing better airline service. The first concerns the need for key non-aircraft bases in Greenland and in Canada, a need which has not yielded to technology, and which is not part of forward strategy. The second concerns the need of the United States armed forces for a large fleet of personnel and cargo aircraft quickly and surely available for conversion to defense use without strangling normal essential traffic. The first of these needs inhibits dealings with Denmark and Canada, the second makes continuing United States CAB support of the United States Supplemental and All Cargo airlines a certainty, if necessary at the expense of the scheduled United States Carriers.

VIII. THE REALLOCATION OF POWER

We can suspect that the prosperity of United States international airlines and the quality of airline service will become high priority United States objectives once the previously overriding defense needs have disappeared. Assuming that this is so, it is useful to predict the objectives which are most pressing if a portion of the newly available power is reallocated into the international airline sphere. There are three general areas in which the achievement of United States international airline objectives has fallen uncomfortably short.

The first of these is in the area of restrictions on capacity to be flown between United States ports and foreign cities. Freedom from specific capacity restriction has long been a plan in United States international air policy, first set down in the 1946 Bermuda Convention. However, strong pressure from many foreign governments has, in several cases, led the United States to accept either explicit or implicit limitation on capacity. The United States desires to permit the airlines which compete in a market to determine, without collusion, the capacity which is to be offered. This objective is a product of a strong conviction that the interests of the travelling public are best served by relatively free competition. Given the accuracy of this philosophy—and there is little evidence against it—some of the United States' bargaining power would be used to remove existing capacity restrictions and to prevent new ones from arising.

The second use of power would be to gain acceptance by foreign governments of a second or third United States carrier to serve their cities. At the present time, many foreign governments are refusing to permit more than one United States carrier into their cities. If a policy of free competition is to be used as a way to determine capacity to be flown and

\[26 \text{ Id.} \]
\[27 \text{L. Doty, Japan Wins Great Circle Tokyo-New York Routing, 91 AVI. WEEK AND SPACE TECH. 25 (1969).} \]
to apply pressure to prices, some way must be found to reduce the effectiveness of the oligopolies which normally exist in any market. The most useful way to do this is to add to the number and variety of effective competitors. Where the number of foreign competitors is insufficient, and other sources of competition impractical, a second United States carrier or broadened United States supplemental carrier rights become logical alternatives. The United States Civil Aeronautics Board has been a firm believer in these means of adding to airline service quality for several years, and has been applying the policy vigorously on United States domestic routes. Many foreign states, however, do not believe so firmly in multiple competition and perhaps are unwilling to risk profits to assure quality of service. At the moment, the United States is having difficulties in adding a new United States carrier to, for example, Rome, Tokyo, Hong Kong and Australia.  

Added bargaining power could be used to assist in these negotiations.

A third way in which added United States power could be used is to stop the process by which foreign carriers are granted routes to internal United States cities. During the last decade, the greatest expansion of routes by foreign carriers with reference to the United States has been the granting of routes to such cities as Chicago, Detroit, Houston, and Denver. Generally such routes have been obtained without concessions of equal value from foreign governments. The foreign concessions obtained have usually been in the form of fifth freedom "beyond" routes. The availability of added United States bargaining power should make it possible to secure these "beyond" routes without sacrificing the lucrative rights to United States internal cities, given at considerable sacrifice in United States airline profits.

IX. THE NEGOTIATING TACTICS

The United States government will have to determine the appropriate bargaining tactics to employ should it wish to use more of its bargaining power in the international airline sphere. It must be presumed that the current airline routes, frequencies and operating restrictions represent a portion of a rough balance which has been drawn between United States overall objectives met and concessions given in exchange to foreigners, on a bilateral basis. Where a United States objective is no longer required, the balance disappears, and a renegotiation of the situation is logical.

Historically recent negotiations between the United States and developed foreign states have been for minor additions to existing routes. In such cases, what has been compared during bargaining has been the marginal changes. That is, the new things offered by one side have been compared to the new things offered by the other sides, without reference to the state of previously existing routes, which were presumed to have

been in balance. Such a procedure is obviously not appropriate where changed circumstances have drastically altered the previously existing balance. In such cases negotiations must be of the entire package of benefits on each side. Such a renegotiation is almost certainly going to require that the basic bilateral agreement between the two states in question be denounced. Where the United States is the party on the short end of the bargain, the United States must denounce the agreement; but the United States has never denounced a commercial air bilateral agreement.

X. A Change in Attitude

When a policy has been in existence for a long time, it becomes more a code of ethics than a national policy. United States government agencies have had trouble adjusting to changed circumstances in the past. As an example, during the late 1950's and early 1960's, the State and Defense Departments vigorously pursued a policy of "closing the dollar gap" through promoting manufacture of American aircraft spares in continental Europe, long after the "dollar gap" had done an about face and had become the "Gold Drain." Today, there are suspicions that United States policy makers are similarly guided by rules learned long ago by rote which are now imbued with an irrational ethical content.

Of the three old line government agencies most closely involved in international airline negotiations, the Defense Department is least likely to change its attitude. In spite of the reduced importance of friendly foreign governments, they still are of some value to the military. Without a mandate to look out for non-defense matters, it is too much to expect the Defense Department to offer to change policies.

There is evidence from interviews with CAB officials that their agency has been opposed to the current policy of lower priority for airline needs throughout the last ten years. They are not charged with securing defense objectives and have been consistently overruled by the needs of higher priority missions.81

The third agency, the State Department, has the mandate to choose the policy which best meets the overall best interest of the United States, rather than the parochial objectives of the more narrowly restricted agencies. To date, all available evidence points to a continuation by the State Department of a policy of being unreasonably nice to competing, but friendly foreign powers. Officials are proud of their history of never having denounced a bilateral agreement—an attitude which has no support in international law. State Department policy makers talk of the problems in airline negotiations with foreign states where, if the matter is restricted to the marginal issue only, the United States has little to offer to gain its desired objectives. Much was made of the strength of the Japanese case against the United States in curtailing recent Pacific route awards. Yet, on a total package basis, the United States' bargaining strength is enormous and Japan's far less.

A change in this attitude will almost certainly take a powerful push from the higher government levels. Such a push could not occur until the complex nature of international airline bargaining has been carefully explored, and a reassessment made of United States' bargaining power versus United States' objectives.

XI. A Policy Reassessment

The possibility of a policy reassessment has been sharply highlighted during the past few years by the entrance into international civil aeronautics matters of the newly formed Department of Transportation. To a degree, the fortunes of the Department of Transportation in its struggle against the old line departments for policy control can be taken as a measure of the importance of airline considerations over other matters of state in airline policy formation. During the struggle, the Department has, not unexpectedly, come into sharp conflict with the State Department over the roles and missions of the several Departments and agencies. The Department of Transportation seems to have taken the position, generally suggested earlier in this article, that existing policies and bilateral agreements no longer reflect the priorities among United States objectives.

It was partly in response to this Department of Transportation initiative that President Nixon in late 1969 called for a full and formal review of United States international commercial air policy.28 The results of this review are contained in the statement of policy on International Aviation approved by the President on 22 June 1970.29 In general, this policy reaffirms the broader aspects of U.S. policy, that is, reliance on bilateral agreements and International Air Transport Association conferences to provide the fundamental agreements necessary to operations. Two specific guidelines in the policy are of particular interest.

The first of these calls for strong support of all-cargo and charter airlines. In this policy, charter and all-cargo operators are stated as important contributors to competition which induce lower fares and the opening of new markets. Although the policy does not stress it, a strong all-cargo and supplemental carrier industry is also very important to the Department of Defense, which needs it for its extreme flexibility and ready diversion to military emergency needs. It is certain that the Department of Defense was a strong contributor to this plank in the policy. This plank serves as a strong reminder that the air transport industry must still serve other than purely commercial transport objectives.

The second interesting provision of the new policy statement calls for tighter bargaining for routes and for vigorous opposition to foreign attempts to restrict the operation of the United States airlines. It calls for retaliatory measures against other nations which restrict operations in violation of bilateral agreements. If this instruction is carried out, it could

result in a stronger competitive position for the United States carriers. It seems to represent a preliminary victory for the Department of Transportation in its battle to force a new look.

On the roles and missions front, the Department of Transportation seems tentatively to have been defeated, and its leader in the battle, Dr. Paul Cherington, has returned to academic life at the Harvard Business School. Had the Department of Transportation won, and thus become the principle policy maker in the international airline field, it would have meant a renunciation of the "Pool of Power" principle. No longer would each sector of the United States economy have contributed its assets of power to the pool from which bargaining needs were drawn in accordance with national priorities. Instead, power available from the transportation sector would have been used only to meet transportation needs.

It is not surprising that the Department of Transportation lost the fight. The "Pool of Power" principle is defensible both on theoretical and practical grounds, and it is unlikely that a chief executive would permit the loss of national flexibility which its abandonment would cause.

Unfortunately the Department of Transportation fought both issues simultaneously. It deserved to lose the roles and missions argument. The other issue, calling for a rebalancing of international airline bilateral bargains, it deserved to win. It can be hoped that policy makers in the Departments of State and Defense will not presume that their roles and missions victory represents full approval of their current operating policies and procedures.

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I. INTRODUCTION

ONE OF the most significant purposes of international law is to establish among sovereign states at least a minimum of order over those matters which are deemed appropriate for its dictates. Stated more concretely it is a function of international law, one ordained by its very nature, to lessen the possible conflicts of states' jurisdiction normally imminent in areas subject to no one particular sovereignty. Aerospace, the physical continuum of airspace and outer space, is essentially such an area. On its legal side, it may be conceived of as being compartmentalized into at least three sectors by international law: national airspace, high seas airspace, and outer space.

A state's jurisdiction is basically that power of the sovereign impressed on any item with legitimacy. The criterion of legitimacy in this definition is international law and the term "item" signifies a person, event, res or locus. The possibility for a situation of jurisdictional conflict in an item is present where two or more states can legally claim jurisdiction over that same item severally and concurrently. Quite evidently, where the lawful extent of states' jurisdiction over any particular item is not clearly understood by the several states, jurisdictional conflict over that item may readily lead to jurisdictional chaos. Where the item in question constitutes an area not subject to the sovereignty of any one state, this development seems most probable. When, therefore, the concept of states' jurisdiction is related to an item-area such as aerospace, and more particularly, to its various sectors, the question of first moment determines what, under international law, constitutes the legal status and the lawful extent of sates' jurisdiction in each and every sector of aerospace. Indeed, the problem of states' jurisdiction in aerospace stands as a question of merit, for to this time the subject of that inquiry has not been examined in depth.

The purpose of the following disquisition, then, is to analyze international law as it pertains to state' jurisdiction in aerospace, or more exactly, in airspace lateral to national territories and to the high seas, in airspace vertical to the surface of the earth, in outer space and in any other aero spatial sector which develops as a necessary inference from international law considerations. It is suggested that the legal conclusions which emanate from the analysis, if deemed correct, will indeed be consequential to juris-
dictional order in aerospace, for they in themselves will reveal that order, if any, attends the sovereign power of the respective nation-states in the various sectors of that expanse. Note from the start, however, that the author strongly believes that whatever significant value for jurisdictional order is attributed to such conclusions is a matter yet transcended by the unique jurisprudential approach to international law made within this treatise, for that, as will be seen, is urged as a new but genuine source of international law rules.

I. STATES' JURISDICTION IN AIRSPACE LATERAL TO NATIONAL LANDS AND MARGINAL WATERS

*The Institute of International Law.* The establishment of a legal principle on states' jurisdiction in airspace lateral to national lands and marginal waters had its development in the conflict between the concept of air freedom and that of national air sovereignty. In 1906 at Ghent, debate over the two competences was initiated. There, the Institute of International Law met and engaged in the first serious colloquium on the legal regime of airspace. During the conference, the eminent French international jurist, Paul Fauchille, proposed adoption of a zone theory in argument for air freedom. He submitted that a zone from ground level to 330 meters be established but reserved for the erection of buildings. In that zone, flight would not be permitted except for take-off and landing. He then submitted that a second zone should be established ranging from the 330 meter mark to a distance up of 5000 meters. This would be declared an air sector free for all flights. Airspace above the altitude of 5000 meters was deemed technologically inaccessible and Fauchille therefore, offered no suggestion as to its legal status.

Westlake, the British delegate to the Institute of International Law and his Italian counterpart, the Marquis Corsi, argued against endorsement of the principle of freedom of airspace. They contended that airspace above national territories was not free but was subject to the sovereignty of the adjacent state. They premised this position on considerations of economic development and political security. So significant were these premises that Fauchille himself was persuaded to modify his thesis. Before the Institute adjourned, he suggested that the subjacent state might enjoin flights under the altitude of 1500 meters to prevent aerial espionage and to insure its security.

The Institute eventually concluded its proceedings by subscribing to the principle that the air is free, with states, however, having in times of peace and in times of war, only the rights necessary to their conservation. Though this showed preference to Fauchille's position, it actually represented a compromise between the two opposing competences. This

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1 The Institute of International Law had previously entertained certain air law discussions at its meetings in Neuchatel in 1900 and in Brussels in 1902. Those discussions, however, did not concern themselves with the question of the legal regime of airspace.

2 *21 Annuaire de L'Institut de Droit International* 293 et seq. (1906).

3 *Id.*
conclusion of the Institute, however, did not constitute its legacy to the law of aviation. Its great contribution lay in the fact that its members in the first genuine discussion of the legal regime of airspace, had crystallized the essential issues and competences appertaining to the problem for future reference by states. In accomplishing this it had fulfilled its primary function. It must be understood that the Institute was only a body of jurists brought together of their own volition and not by the mandate of the several sovereign states. As such, it did not constitute an international parliament whose pronouncements became international law binding on those states. Its conclusions on the airspace regime were merely opinions of scholarship *de lege ferenda,*\(^4\) tendered to persuade the nation-states as to what their future attitude toward airspace should be. What the formula for the airspace regime would be could only be determined by the convention or custom of states in reaction to future developments in and implications of the art of aviation.\(^5\) As a result, the importance of the Institute’s work resided not in its final conclusions but instead in the clarification of the issues and possible approaches to a problem which had never before been seriously entertained by the nation-states. The Institute raised and defined the concepts of air freedom and *aer clausum.*\(^6\) It made the several states cognizant of a problem-subject which would eventually confront them. But this was all that body of jurists was capable of doing in the matter of the legal regime of airspace lateral to national territory. It was then left to the states to order themselves to one or the other competences, for their future practice could alone determine the international law on the airspace question.

Doctrinal debates on the competence proper for airspace flourished from 1906 to 1910. During that time the concept of air freedom commanded a preference in the minds of the majority of jurists. It was more than likely that the strongest influence for the preferred status of the air freedom competence was *mare liberum,*\(^7\) a principle deemed applicable by apperception because of basic physical resemblances between airspace and the high seas. In 1909, Bleriot landed in Great Britain, his flight traversing the English channel.\(^8\) Two years later, the airplane dropped its first bomb, fired its first volley from a mounted weapon, and successfully conducted the first aerial reconnaissance in time of war.\(^9\) With their impacting military implications, these events decidedly affected the governments of the

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\(^4\) *De lege ferenda* is the international law term which means “concerning the law as it should be.” Its employment indicates that what is being discussed is merely a proposal as to what the law should be. Such term should be distinguished from *de lege lata* which means “concerning the law as it is.” When this latter term is used, it means that what is being discussed is itself the law.

\(^5\) The two great sources of international law are custom and convention (treaty). Thirty Hogsheads of Sugar v. Boyle, 13 U.S. (9 Cranch) 191 (1815).

\(^6\) *Aer clausum* is the international law term which literally means the air is closed and signifies the subjacent state’s sovereignty over airspace superadjacent to its national territory to the exclusion of all other sovereigns.

\(^7\) *Mare liberum* is the international law term which capsulizes the customary international law rule that the high seas are free and open to the use of all sovereign states and are not subject to claims of exclusive sovereignty made by any state.


\(^9\) Id. at 77.
world in their attitude toward a regime for airspace lateral to national territory. Thereafter, states began to endorse the theory of *aer clausum*.

**The Impact of World War I.** The assault upon the justistic preference for air freedom began with the United Kingdom’s adoption of the Aerial Navigation Act of June 2, 1911. Its preamble proclaimed that

> ... [t]he sovereignty and rightful jurisdiction of His Majesty extends, and has always extended, over the air superincumbent on all parts of His Majesty’s dominions and the territorial waters adjacent thereto.

Relying on that declaration, Parliament proceeded to delegate authority for the regulation of foreign aircraft vis-à-vis their entrance into British airspace. Acts similar to the English declaration of national air sovereignty were passed in Russia and in Austria-Hungary. It was during World War I, however, that the air freedom concept finally succumbed to its antipode. The Netherlands, as a neutral in the conflict, adequately made the case for *aer clausum*. On 8 September 1915 that state sent a diplomatic note to the government of Germany, protesting the flight of two German zeppelins over its territory. The overflights were unintentional and caused by navigational errors arising from poor visibility. The Dutch government, however, premised its claim on the postulate that flying over the territory of a state without its consent was incompatible with respect for its sovereignty. By not making exceptions because of the conditions responsible for the overflight, that government asserted the postulate as an absolute. It re-confirmed its position several months later. On 1 February 1916 a German zeppelin, whose aerial behavior indicated *force majeure*, drifted into airspace superadjacent to Dutch territory. Without warning it was shot at. The government of the Netherlands had become the outstanding advocate of national air sovereignty.

The import of the Dutch-German episodes lay in the fact that the Netherlands was a neutral and not a belligerent. There is no question that those states who were engaged in conflict had subscribed to the *aer clausum* theory. From their practice, then, it could logically be contended that that competence, at least during war, was the rule among belligerents. But to have a state argue for that same competence when it was a recognized neutral, and hence, not under the immediate strains of hostilities was a factor that could only inure to the reception of *aer clausum* as a matter of sovereign right. This practice indicated that that competence transcended wartime considerations and applied to all states at any and all times. That indication was greatly strengthened in 1918 when France, till

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102 Halsbury’s Statutes of England 53 (2d ed. 1948).
then the standard-bearer of air freedom during times of peace, gave its support to the opposite competence.\(^\text{14}\)

In retrospect, it can be said that World War I had a tremendous impact on what the legal regime of airspace lateral to national territories should be. It demonstrated to the sovereign states the power and danger of the aircraft, a weapon whose future military potential appeared estimable. It thereby caused those states, both belligerent and neutral, to deem the air freedom competence as incompetent for security and incompatible with sovereignty. By the war's end, the practice of states had been such that it was most probable that the aer clausum theory had become a customary rule of international law.\(^\text{15}\)

The Paris Convention. The International Convention for Air Navigation\(^\text{16}\) which materialize from the Paris Conference of 1919 erased any doubt as to what was the legal regime of airspace lateral to national territories and marginal waters in international law. Its most famous provision, Article 1, announced clearly that:

The High Contracting Parties recognize that every Power has complete and exclusive sovereignty over the air space above its territory. For the purpose of the present Convention the territory of a State shall be understood as including the national territory, both that of the mother country and of the colonies, and the territorial waters adjacent thereto.

The high significance of this provision was that the states attending the convention were recognizing the aer clausum competence as applying to all sovereign states. Since it was more than conceivable to those who became party to the Convention that not all sovereign states, for one reason or another, would ratify the document, it had to follow that Article 1 represented to them the formalization of a principle already deemed customary international law. This one fact constituted Article 1 as the best evidence of what the legal regime of airspace in international law was and conclusively brought to an end the debate that started in 1906.

To have a comprehensive understanding of the import of the Paris Convention, it is important to note that the Convention's position on the matter of the airspace regime has oftentimes been misunderstood. The reason for this misunderstanding is the erroneous reading of Articles 2 and 15 of the Convention. The former states that:

Each contracting State undertakes in time of peace to allow freedom of innocent passage above its territory to the aircraft of the other contracting States, provided that the conditions laid down in the present Convention are observed . . . .\(^\text{17}\)

Article 15, in turn states that:


\(^{15}\)McDOUGAL, LASWELL, AND VLASTIS, LAW AND PUBLIC ORDER IN SPACE 260 (1963).


\(^{17}\)Id.
Every aircraft of a contracting State has the right to cross the air space of another State without landing. In this case it shall follow the route fixed by the State over which the flight takes place . . . Every contracting State may make conditional on its prior authorization the establishment of international airways and the creation and operation of regular international air navigation lines, with or without landing, on its territory.\textsuperscript{18}

In commenting on the Paris Convention, Andrew Haley, one of the world's most distinguished air and space jurists, concluded that:

While granting complete and exclusive sovereignty to the individual nations, it requires them to observe the following conduct: aircraft of foreign nations have freedom of innocent passage over national territory subject to certain regulations . . . \textsuperscript{19} [Emphasis added].

In this interpretation, he is sadly mistaken.

From his words, it is Haley's belief that the sovereign powers which Article 1 asserts possess exclusive air sovereignty are the very same states which Articles 2 and 15 subject to innocent passage and overflight. Since Article 1 speaks in terms of all sovereign states, Haley's conviction would mean that Articles 2 and 15, like Article 1, embody expressions of customary international law.\textsuperscript{20} If this were correct, then these applicable Articles of the Paris Convention, when consolidated, would mean that the legal regime of national airspace was not so exclusive nor so complete. The subjects of Articles 2 and 15, however, are not coterminus with those in Article 1 as Haley so assuredly would have his reader believe. Those sections only contemplate those powers party to the Convention, i.e., contracting states.\textsuperscript{21} Once this fact is perceived, the correct position of the Paris Convention on the legal regime of airspace lateral to national territories emerges.

From Article 1, a provision deemed the expression of customary international law, comes the rule that every power possesses complete and exclusively sovereignty over such airspace. This point of law, moreover, does not find qualification by the fact that Articles 2 and 15 are present in the same document. Their provisions on innocent passage and overflight are not tendered as customary international law enunciations for the simple

\textsuperscript{18} Id. What should be noted in Art. 15 is the ambiguous language used. The first sentence reads: every aircraft of a contracting state has the right to cross the air space of another state without landing. The italicized words, as used therein, may literally mean any sovereign state whether contractee or not. However, any argument to this point would be specious because, once it is admitted that customary international law is to the effect of national air sovereignty complete and exclusive (Art. 1), then any derogation of such sovereignty (Art. 15), must arise from the express abnegation of that sovereignty by treaty. Hence the italicized words can only refer to contracting states.

\textsuperscript{19} Haley, \textit{supra} note 13, at 45.

\textsuperscript{20} It has already been suggested that Art. 1 represents the expression of a rule of customary international law. In further support of this point, the following would appear to have merit. Art. 1 begins by stating: "The High Contracting Parties recognise that every power has . . . " (emphasis added). The use of the word \textit{recognise} would seem to signify almost conclusively the fact that the contracting states were taking cognizance of a rule already existent. States in their multilateral treaties do not recognize the rules, rights, or obligations they create by treaty. They simply state what they are. Thus, the use of the word \textit{recognise} indicates that what was being recognized was not a conventional creation, but a customary one.

\textsuperscript{21} Art. 2 states: Each contracting State undertakes . . . innocent passage . . . to the aircraft of the other contracting States. For discussion of whom Art. 15 refers, see note 18 \textit{supra}.
reason that they are made applicable only to contracting states. Hence, Articles 2 and 15, in and of themselves, do not qualify the customary international law competence raised by Article 1. They affect and modify the national air sovereignty of only those states which become party to the Convention. On the part of sovereigns assenting to their provisions, therefore, Articles 2 and 15 simply constitute a treaty abnegation of some of the exclusiveness and the completeness of the air sovereignty that, as recognized by Article 1, applies to all states. As a result, the Paris Convention’s position on the legal regime of airspace lateral to national territories and marginal waters is aer clausum absolute and unconditioned.

The United States signed but did not ratify the Paris Convention on Aerial Navigation. This did not mean, of course, that it did not appreciate the principle enunciated by Article 1 of that document. In 1926, the United States Congress passed the Air Commerce Act, Section 6 of which read:

The Congress hereby declares that the Government of the United States has, to the exclusion of all foreign nations, complete sovereignty of the airspace over the lands and waters of the United States, including the Canal zone.

Five years later, the United States finally gave adherence to the aer clausum competence on the international level by ratifying the 1928 Pan-American (Havana) Convention on Commercial Aviation. The Pan-American Convention was a multilateral treaty whose first article closely resembled that of the Paris Convention. The Soviet Union, on the other hand, strictly avoided any affiliation with the various air conferences. On the domestic side, however, it eventually emulated the American example through passage of legislation comparable to Section of the 1926 Air Commerce Act.

[Note: Citations and further details are omitted for brevity.]

22 The chief reason attributed to the refusal of the United States Senate to give its advice and consent to the ratification of the Paris Convention of 1919 is the fact that the administrative body of the Convention, the International Commission for Air Navigation, was placed under the League of Nations, an organization to which the post-war American senate would not commit the United States. HALEY, supra note 13, at 46.


24 This sentence was deleted in 1938 by the enactment of section 1107(i)(3) of the Civil Aeronautics Act of 1938. In its place, section 1107(i)(3) substituted the following: “The United States of America is declared to possess and exercise complete and exclusive national sovereignty in the air space above the United States, including the air space above all inland waters and the air space above those portions of the adjacent marginal high seas, bays, and lakes, over which by international law or treaty or convention the United States exercises national jurisdiction.” This declaration was re-enacted verbatim by section 1108(a) of the Federal Aviation Act of 1958, 49 U.S.C. 1508, 72 Stat. 798.

25 47 Stat. 1902 (1931). This multilateral treaty was drafted during the Sixth International Conference of American States. It was eventually ratified by Chile, Costa Rica, Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, and the United States.

26 Art. I of the Pan-American Convention provided as follows: “The high contracting parties recognize that every state has complete and exclusive sovereignty over the air space above its territory and territorial waters.”

27 In passing, it is to be noted that the Paris and the Havana Conventions were not the only multilateral air navigation protocols undertaken before the outbreak of World War II. Another one, hardly ever mentioned, was the Ibero-American Convention on Air Navigation, signed at Madrid on Nov. 1, 1926. Basically a carbon of the Paris Convention, it was signed by Spain, Portugal, and the American republics other than the United States. Since, however, few of its signatories ratified it, the Ibero-American Convention never amounted to much and is only given here for historical interest.

28 Art. I of the Soviet Air Code (Vozdushnyj Kodeks, 1935), provided as follows: “To the Union of Soviet Socialist Republics belongs complete and exclusive sovereignty in the airspace above...
The Chicago Conference. The final chapter on the regime of airspace lateral to national territories was written in 1944 at the Chicago Conference on International Aviation. Three international agreements emerged from the proceedings of that conference, each having provisions relevant to that subject matter. In order of their importance, those documents were the Convention on International Civil Aviation, the International Air Services Transit Agreement and the International Air Transport Agreement.

The Chicago Convention was drafted to supplant both the Paris and Havana Conventions and to insure that the development of international civil aviation during the post-war period would proceed on a sounder and more orderly basis. Notwithstanding this posture, the drafters of that Convention xeroxed the articles on airspace sovereignty that the Paris and Havana Conventions tendered as formalized expressions of customary international law. For a third time in twenty-five years, a synod of nation-states canonized aer clausum the first principle in the body of international air law. It was again declared that the contracting states recognized that every State had complete and exclusive sovereignty over the airspace above its territory.

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The Chicago Conference commenced on Nov. 1, 1944 and adjourned Dec. 7 of that same year. Its main purpose was to resume negotiations on international air transportation which negotiations had been interrupted by the outbreak of World War II. Representatives from fifty-four states attended. Neither the Soviet Union nor the Axis Powers sent delegations.

The Transit Agreement is ranked second because Art. 1, § 2 of that agreement causes the exercise of the agreement's privileges to be valid only if such exercise is in accordance with the provisions of the Convention on International Civil Aviation. The Transport Agreement is ranked last because so few states have adhered to it.

The Convention was ratified by the United States of America on Aug. 9, 1946; 61 Stat. 1180 (1947). As of the beginning of 1964, one hundred and one states had ratified or adhered to it. BILLEYOU, AIR LAW 626-28 (1964). It is also to be noted that the Soviet Union has not ratified the Convention. (Hereinafter this Convention shall be referred to as the Chicago Convention.)

This Agreement was not ratified by the United States as a treaty but was adhered to by the United States as an executive agreement on Feb. 8, 1945; 59 Stat. 1693, E.A.S. 487. As of the beginning of 1964, sixty-four had accepted it. BILLEYOU, AIR LAW 642-43 (1964). (Hereinafter this Agreement shall be referred to as the Transit Agreement.)

The Agreement was adhered to by the United States as an executive agreement at the same time the United States accepted the Transit Agreement, 59 Stat. 1701, E.A.S. 488. However, on July 25, 1946, the United States denounced it, effective July 25, 1947, the United States giving as the reasons for its action that only fifteen states had favorably received it and that general dissatisfaction with the agreement was patent. 15 Dept. State Bull. 236 (1947). (Hereinafter this Agreement shall be referred to as the Transport Agreement.)

Art. 80 of the Chicago Convention on International Civil Aviation states as follows: "Each contracting State undertakes, immediately upon the coming into force of this Convention, to give notice of denunciation of the Convention relating to the Regulation of Aerial Navigation signed at Paris on October 13, 1919, or the Convention on Commercial Aviation signed at Havana on February 20, 1928, if it is a party to either. As between contracting States, this Convention supersedes the Conventions of Paris and Havana previously referred to."

Id. The Preamble of the Chicago Convention states that "... the undersigned governments having agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically..."

Chicago Convention, Art. 1, T.I.A.S. 1591. In defining the word territory as used in Art. 1, Art. 2 states that "for the purpose of this Convention, the territory of a State shall be deemed to be the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of such State."
The provision in the Chicago Convention re-affirming the concept of national air sovereignty to all states is not the only item therein concerned with the regime of airspace lateral to national territories. There are two other articles which bear on the exclusiveness and the completeness of the competence asserted. Article 6 complements those restrictive qualities by holding that no scheduled international air service may be operated over or into the territory of a contracting State, except with the special permission or other authorization of that State. Article 5, on the other hand, seems to abridge the meaning of exclusiveness and completeness as those terms modify national air sovereignty, by allowing a right of non-scheduled overflight. However, exactly like the innocent passage freedom accorded under Article 2 of the Paris Convention, this comparable right of Article 5 only applies to and solely seizes upon those who become a party to the Chicago Convention, i.e., contracting states. Not being recognized to the favor of all states as is *aer clausum*, this right can not modify that competence per se. Since Article 5 of the Chicago Convention applies only between and among the various contractees, it qualifies their air sovereignty and their air sovereignty alone, as against that of all other sovereign states whose competence in national airspace remains wholly exclusive and complete until such time as they enter into privity by ratification of Article 5. This simply means that the Chicago Convention, like its predecessor the Paris Convention, decrees the regime of airspace lateral to national territories *aer clausum*, absolute and unconditioned.

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37 The Chicago Convention did not define the term “scheduled international air service.” The International Civil Aviation Organization (ICAO), however, subsequently circumscribed the term as follows: "A scheduled international air service is a series of flights that possesses all the following characteristics:

(a) It passes through the air space over the territory of more than one state.
(b) It is performed by aircraft for the transport of passengers, mail, or cargo for remuneration, in such a manner that each flight is open to use by members of the public.
(c) It is operated so as to serve traffic between the same two or more points, either (1) according to a published timetable, or (2) with flights so regular or frequent that they constitute a recognizably systematic series. I.C.A.O. Doc. No. 7278, C 841 (May 10, 1952).

38 Specifically, Art. 5 states that “each contracting state agrees that all aircraft of the other contracting states, being aircraft not engaged in scheduled international air services, shall have the right, subject to the observance of the terms of this Convention, to make flights into or in transit non-stop across its territory and to make stops for non-traffic purposes without the necessity of obtaining prior permission . . . “

39 Id.

40 *Aer clausum*, being recognized to the favor of all states by Art. 1 of the Chicago Convention, represents thereby the creation neither of nor by a multilateral treaty, for such, in view of the contractual nature of a treaty, would only obtain to the contractees thereof; but it represents rather, and as it must because of the deliberate use of the phrase “recognize to every state,” the formalized expression of a rule deemed by the contracting states as already existent, and hence the formalized expression of a rule of customary international law. The right of non-scheduled overflight, however, as laid out by Art. 5 of the Chicago Convention, is, unlike *aer clausum*, not recognized to all states but created by that treaty to be effective between and among contractees thereto. Thus, it is not given as the formalized expression of a rule of customary international law, and as such, can not operate by and of itself to change with respect to all states a rule of customary international law, such as *aer clausum*, which by its nature obtains to all states. By itself, therefore, the right of non-scheduled overflight does not qualify *aer clausum* as it obtains to any state until such time as that state assents to a modification of its national air sovereignty competence by treaty, and specifically here, by ratification of Art. 5 of the Chicago Convention. See also, Bishop, International Law 373, n.54 (1962).

41 Chicago Convention, Art. 1, T.I.A.S. 1591; as has been previously mentioned, Art. 1 embodies a rule of customary international law.

42 To state it differently, it means that the freedom of innocent passage, now under the Chicago
The Chicago Convention was but one of three documents that emerged from the 1944 Conference on International Aviation. The other two were the International Air Transport Agreement and the International Air Services Transit Agreement. Both contain provisions pertinent to the subject of national air sovereignty. The Transport Agreement, however, never amounted to anything of significance because adherence to it was meager. The Transit Agreement, on the other hand, did gain wide acceptance. Its provisions, therefore, warrant attention.

The Transit Agreement begins by stating that:

Each contracting State grants to the other contracting States the following freedoms of the air in respect to scheduling international air services:

1. The privilege to fly across its territory without landing;
2. The privilege to land for non-traffic purposes.\(^{49}\) [Emphasis added.]

In continues by adding that the exercise of these privileges shall be in accordance with the provisions of the Chicago Convention.\(^{44}\) That latter treaty, however, provides that no scheduled international air service may be operated over or into the territory of a contracting state, except with the special permission or other authorization of that state, and in accordance with the terms of such permission or authorization.\(^{45}\) Since the exercise of the Transit Agreement freedoms is made contingent on prior permission of the subjacent state, it follows that the grant of overflying privileges under that agreement is actually illusory.\(^{46}\) Indeed, it can even be said that such grant is redundant and superfluous.\(^{47}\) Consequently, the Transit Agreement has no affect \(\textit{per se}\) upon the exclusiveness and completeness of the national air sovereignty of those states who are party to it; for, by

\(^{44}\) Transit Agreement, Art. 1, § 1, 59 Stat. 1693 E.A.S. 487.

\(^{45}\) Chicago Convention, Art. 6, 61 Stat. 1180.

\(^{46}\) The grant of overflying privileges under the Transit Agreement is deemed \textit{illusory} because the ordering of such grant to the dictates of Art. 6 of the Chicago Convention (see note 47) renders the grant from its very inception liable to suspension for perpetuity. In the first place, nothing is actually granted by the Transit Agreement until such time as permission to overfly is given by the subjacent state (Art. 1, § 1 of the Transit Agreement ordering its privileges to the provisions of the Chicago Convention, and specifically for purposes here Art. 6 thereof). In the second place, the subjacent state, under no obligation to give such permission, may never do so.

\(^{47}\) The grant of overflying privileges under the Transit Agreement is deemed \textit{superfluous} because Art. 6 of the Chicago Convention to which such grant is subject for its operativeness states that no scheduled international air service may be operated over or into the territory of a contracting state except with the special permission or other authorization of that state. Art. 6, therefore, allows for overflight when permission is given. The grant in the Transit Agreement, however, accords overflight only when permission to overfly is given pursuant to the terms of Art. 6 of the Chicago Convention. As a result, only Art. 6 of the Chicago Convention is needed for an overflight.
ordering its provisions to those of the Chicago Convention, it makes as requisite for the operativeness of its privileges a bilateral treaty between the overflying sovereign and the subjacent state. 48

With the 1944 Chicago Convention, discussion of the legal regime of airspace lateral to national territories ceased. Custom, three conventions, two international agreements and the municipal legislation of nation-states irrefutably evidenced that airspace above national territories was exclusively and completely under the control of the state subjacent thereto, and the legitimacy of any overflight of any aircraft foreign to the subjacent state lay only in permission pursuant to treaty or international agreement. 49 Sanctioned thus by all sources of international law, aer clausum is simply a black-letter rule of international law.

II. STATES' JURISDICTION IN AIRSPACE LATERAL TO THE HIGH SEAS

It is an unquestionable principle of international law that the airspace lateral to national lands and marginal waters is within the exclusive and complete sovereignty of the subjacent state. 50 It is also an unquestionable principle of international law that the lateral extent of a state's national airspace is defined by, and hence coterminus with, the lateral extent of the lands and waters over which it wields sovereignty. 51 This would seem to suggest that no state may legitimately claim to the prejudice of the other powers a territorial competence in airspace superadjacent to land masses or marine expanses over which that state enjoys no sovereignty. 52 Several countries, however, have asserted claims to airspatial zones which, contiguous to their respective national boundaries, are actually lateral to areas of the high seas. 53 The legitimacy of such assertions, which is the

48 Art. 1, § 2 of the Transit Agreement makes the agreement's privileges subject to the provisions of the Chicago Convention. Art. 6 of the Chicago Convention states that no scheduled international air service may be operated over or into the territory of a contracting state, except with the special permission or other authorization of that state, and in accordance with the terms of such permission or authorization. The usual and normal diplomatic practice of states has been to afford such special permission or authorization through the machinery of a treaty or other international agreement. A noteworthy example of permission to overfly is the Bermuda Agreement between the United States and the United Kingdom, concluded Feb. 11, 1946, 60 Stat. 1499, T.I.A.S. 1507. The overflight of a foreign aircraft not engaged in scheduled international air service is permitted by contracting states of the Chicago Convention as in favor of and among themselves (Art. 5). The overflight of a foreign aircraft engaged in scheduled international air service is permitted only through bilateral agreement (Art. 6). In both cases, therefore, treaty or other international accord is the requisite for one state's privilege to penetrate the airspace of another. See also, Bishop, International Law 373, n.14 (1962).

49 Chicago Convention, Art. 1, 61 Stat. 1180, T.I.A.S. 1591. As has already been shown, Art. 1 is the formalized expression of a rule of customary international law, thereby obtaining to all states and not just those party to the multilateral treaty.

50 Id., Art. 1 of the Chicago Convention states that every State has complete and exclusive sovereignty over the airspace above its territory (emphasis added). Thus, the boundary of national territory is made the perimeter of a State's national airspace. Art. 2 of the same convention defines the territory of a State as the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of such State.

51 Id. If, under Arts. 1 and 2 of the Chicago Convention, the perimeter of a State's national airspace is determined by the boundaries of its national territories, then it would seem to follow that a State's exclusive and complete competence in any column of airspace depends entirely on whether it is sovereign over the land or water subjacent to that column of airspace in question.

52 The foremost of which are the United States and Canada. Details on their respective claims are infra.
most significant issue raised, depends on the reconcilability of two factors: (1) the legal regime of airspace thus contiguous and so lateral and, (2) the quality of the sovereign claim asserted.\textsuperscript{54}

The Legal Regime of High Seas Airspace. The history of international air law evidences the fact that a vast column of airspace, when considered for its legal status, is deemed specially related to the area subjacent to it.\textsuperscript{55} It would seem then that an appreciation of the legal regime of airspace contiguous to national boundaries, but lateral to the high seas, finds a fitting start in a knowledge of the legal regime of the high seas itself. Article 2 of the 1958 Geneva Convention on the High Seas\textsuperscript{56} enunciates the doctrine of freedom of the seas. Like Article 1 of the 1944 Chicago Convention on national airspace sovereignty, this declaration of \textit{mare liberum} is not a creation of the convention in which it is found\textsuperscript{57} but represents instead, the formalized expression of a rule considered customary international law\textsuperscript{58} since the time of Hugo Grotius.\textsuperscript{59} Specifically, Article 2 of the Geneva Convention states that, the high seas being open to all nations, no state may validly purport to subject any part of them to its sovereignty.\textsuperscript{60} The legal regime of the high seas, then, may correctly be designated \textit{res omnium communis} or \textit{res extra commercium}.\textsuperscript{61} In view of the fact that the airspace

\textsuperscript{54}It is important to note that a sovereign claim over airspace is open to degrees of assertion. This seems clear from the language of Art. 1 of the Chicago Convention which declares that every State has complete and exclusive sovereignty over the airspace above its territory (emphasis added). If the word "sovereignty" in and of itself included and conveyed the meaning of the italicized words, then their presence in Art. 1 would hardly be needed. Their presence intimates that the word "sovereignty" does not connote in and of itself their qualities and hence, admits of degrees. Thus, a sovereign claim over airspace can be asserted on the part of a state as either exclusive or not to exclusive. The sovereign claim then may and can be qualified.

\textsuperscript{55}The development of the legal regime of airspace lateral to national territories patently substantiates this point.


\textsuperscript{57}The proof of this proposition lies in the preamble of the Geneva Convention on the High Seas. Therein, it is stated that "the states parties to this convention desiring to codify the rules of international law relating to the high seas, recognizing that the United Nations Conference on the Law of the Sea, held at Geneva from 24 February to 27 April 1958, adopted the following provisions as generally declaratory of established principles of international law, have agreed as follows . . . ."

\textsuperscript{58}In general, it may be said that a principle is venerated as a rule of customary international law if there obtains to it \textit{usus longevus} (its long use and acceptance by the states of the world) and \textit{opinio juris sive necessitatis} (the convention among the states that it is legally binding or necessary). See, CHRISTOL, \textsc{The International Law of Outer Space} \textsc{148} (1966); BISHOP, \textsc{International Law} \textsc{19} (1962). The principle of \textit{mare liberum} has for so long a time been modified by both these qualities as to render meaningless any doubt as to its status as a rule of customary international law.

\textsuperscript{59}The Dutch jurist Hugo Grotius (1583-1645), called the "father of international law," stated in his \textit{De Jure Breaeae} that it was the law of nations that the ocean is free to all states.

\textsuperscript{60}Convention on the High Seas, Geneva (1958), T.I.A.S. 5200, 13 U.S.T. 2312. Art. 2 specifically states that "The high seas being open to all nations, no State may validly purport to subject any part of them to its sovereignty. Freedom of the high seas is exercised under the conditions laid down by these articles and by the other rules of international law. It comprises \textit{inter alia} both for coastal and non-coastal states: (1) freedom of navigation; (2) freedom of fishing; (3) freedom to lay submarine cables and pipelines; (4) freedom to fly over the high seas. These freedoms, and others which are recognized by the general principles of international law, shall be exercised by all States with reasonable regard to the interests of other States in their exercise of the freedom of the high seas."

\textsuperscript{61}Attempts have been made to distinguish the two terms. One jurist claims that \textit{res omnium communis} means an object under the joint sovereignty of all subjects of international law while \textit{res extra commercium} means an object not subject to national appropriation, citing the high seas as an example thereof. Cheng, \textsc{The Extra-Terrestrial Application of International Law}, 18 \textsc{Current
above a state's territory has been attributed the same legal status as that of the subjacent territory, there is severe temptation to argue that the regime of airspace lateral to the high seas is identical to that which applies to the high seas themselves, i.e., no part thereof subject to the sovereignty of any state. As appealing as this analogical argument is, however, it is unacceptable. The reason for this lies in the fact that part of Article 2 of the Geneva Convention states that freedom of the high seas comprises inter alia the freedom of all states to fly over the high seas. This is significant since it clearly indicates that the status of airspace superadjacent to the high seas was duly considered by the delegates to the Geneva Convention. Comment in the Convention, however, was made only to an inviolable right of overflight. Though the opportunity was ripe to pronounce such airspace res omnium communis, this was in no way done. More relevant to the point is that the provision in Article 2 which states that no power may validly purport to subject any part of the high seas to its sovereignty, is a proscription only applicable to waters outside the dominion of any state. Its extension, therefore, does not encompass, nor does it modify, any of the airspace superadjacent to those waters deemed by the Convention res omnium communis. It being no postulate of customary international law that the regime of a column of airspace must always be the same as that of its subjacent area, all that may be said up to this point

LEGAL PROBLEMS 145 (1965). Another authority states that the high seas are not subject to national appropriation but then designates the high seas as a thing common to all mankind, i.e., res omnium communis, 45 AM. JUR. 2D (1969). As a result, both terms may be used to signify an object not subject to the exclusive sovereignty of any single state.

The drafters of the Convention on the High Seas, Art. 2, Geneva (1958), T.I.A.S. 5200, 13 U.S.T. 2312. The drafters of the Convention on the High Seas obviously considered the legal regime of airspace lateral to the high seas because they wrote into the document the proposition that such airspace is freely open to the flights of aircraft of all states (Art. 2). This, however, was all they enunciated on such airspace. They did not say, as they did with respect to the high seas, that no part of such airspace was subject to the sovereignty of any state. In view of these facts, it is reasonable to conclude that, in their consideration of the legal status of high seas airspace, the drafters were not fully convinced that it was truly res omnium communis; otherwise, there is no sufficient reason to explain why they refrained from deeming it as they did that of the high seas, especially when it is considered that they knew well that both res were not only peculiarly related to each other but also physically resemblant in their vastness.

The provision in Article 2 which states that no State may validly purport to subject any part of the high seas to its sovereignty is a proscription only applicable to waters outside the dominion of any state. As appealing as this analogical argument is, however, it is unacceptable. The reason for this lies in the fact that part of Article 2 of the Geneva Convention states that freedom of the high seas comprises inter alia the freedom of all states to fly over the high seas. Another authority states that the high seas are not subject to national appropriation but then designates the high seas as a thing common to all mankind, i.e., res omnium communis, 45 AM. JUR. 2D (1969). As a result, both terms may be used to signify an object not subject to the exclusive sovereignty of any single state.

There are only a few provisions in force which are in any way pertinent to this issue of the relationship between a column of airspace and its subjacent area. One is Art. 2 of the 1958 Geneva Convention on the High Seas which states that every state has the freedom to fly its aircraft over the high seas. Another is Art. 1 of the 1944 Chicago Convention on International Civil Aviation, T.I.A.S. 1591, which recognizes that every state has complete and exclusive sovereignty over the airspace above its territory. And another is Art. 2 of the 1918 Geneva Convention on the Territorial Sea and the Contiguous Zone, T.I.A.S. 5639, which states that the sovereignty of a coastal state extends to the airspace over its territorial sea. From these provisions in force, it can not be reasonably concluded that it is a rule of international law that the regime of a column of airspace must always be the same as that of its subjacent area. This is all the more supported when it is considered that Art. 14 of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone, T.I.A.S. 5639, declares that the ships of all states shall enjoy the right of innocent passage through the territorial sea while a composite of Arts. 5 and 6 of the 1944 Chicago Convention on International Civil Aviation, T.I.A.S. 1591, reveals that only the aircraft of contracting states, being aircraft not engaged in scheduled international air services, may make flights into a contracting state's territory (under Art. 2 territory includes territorial waters) without the necessity of obtaining permission. Here then is a case where a column of airspace is not modified by the exact same legal principle which adheres to its subjacent area.
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on the status of high seas airspace is that through it and within it, a freedom of flight to the benefit of all states is unanimously recognized. Further circumscription of the status of such airspace, however, may be gathered, albeit indirectly, by recourse to Article 1 of the 1944 Chicago Convention. Specifically, that Article recognizes that every state has complete and exclusive sovereignty over the airspace above its territory. More significantly, that Article defines the precise limits of the aere clausum of any state. The history of the customary international law rule which Article 1 embodies, clearly reveals that its ascension invested all states with a competence not before applicable to them under international law. Since that rule itself confers to every state exclusive and complete air sovereignty, it is by nature restrictive; hence, it follows that the limitations it puts on the sovereignty it confers represent the extremes of the national air sovereignty of any state. Thus, from Article 1 of the Chicago Convention, it may be concluded that it is a corollary of the customary international law rule that the exclusive and complete air sovereignty of any state extends to no part of the airspace superjacent to the high seas.

The composite of Article 2 of the 1958 Geneva Convention on the High Seas and Article 1 of the 1944 Chicago Convention on International Civil Aviation yields the best evidence on the status of high seas airspace under customary international law. These two Articles set forth the proposition that all of such airspace may be used by every state to fly over the high seas and that none of such airspace may be subjected to the exclusive and complete sovereignty of any power. Beyond that, nothing else of authority can be said. This would suggest, then, that if degrees of air sovereignty lesser than exclusive and complete are admitted, claims thereunder might very well pertain to portions of high seas airspace provided their institution does not impinge in the slightest way upon the inviolable right of every state to fly through and within that airspace.

The Extent of the Domestic Jurisdiction of a State. Whether a competence of air sovereignty less than exclusive and complete can be admitted to the favor of any state with respect to airspace outside its national

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67 Before the emergence of the rule embodied in Art. 1 of the Chicago Convention, no state had exclusive and complete sovereignty over any airspace anywhere. Upon its emergence, states obtained through it an exclusive and complete air sovereignty, but only over that airspace which was above their respective territories. In view of these two facts, the rule embodied in Art. 1 is actually an expression of the limits of the exclusive and complete air sovereignty of any state under customary international law. Hence, in essence, it is a rule not only stipulating a competence but as well restricting such competence to the terms of its stipulation.
68 The limitations it puts on the sovereignty it confers are expressed in the term its (state's) territory. Art. 2 of the Chicago Convention defines the territory of a state as the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection, or mandate of such State.
69 The preamble of the Geneva Convention on the High Seas states that the sovereign's party to the convention recognize that its provisions are generally declaratory of established principles of international law. Art. 1 of the Chicago Convention states that the contracting states recognize that every state has complete and exclusive sovereignty over the airspace above its territory. The act of recognition implies that what is being asserted already exists as customary international law. See note 20 supra.
70 The issue is simply a theoretical question of whether a state may enjoy an air competence less than absolute, and if so, under what set of legal prescriptions.
boundaries, is an issue which addresses itself to the legitimate ambit under international law of any state's domestic jurisdiction.\textsuperscript{71} This is so because international law does not expressly confer upon any state that competence;\textsuperscript{72} and hence, its admission, if it is to come, can only come from the legally sanctioned extent\textsuperscript{73} to which items fall within a state's inherent power to act over them.\textsuperscript{74}

From a synthesis of international authority, it is reasonable to define the domestic jurisdiction of a state as that part of its sovereign power and discretion which, without violation of its international obligations,\textsuperscript{75} has been exercised over\textsuperscript{76} a locus, res, or persona through a jurisdictional basis

\textsuperscript{71} A state is defined as a subject of international law possessing a permanent population, a defined territory, a government, and the capacity to enter into relations with other states; Convention on Rights and Duties of States, Montevideo (1933), 49 Stat. 3097, U.S.T. 881. Sovereignty is that quality which adheres to a state simply because it is a state. In essence, it signifies the inherent power of a state to act qua state; Bodin, De Republica (1576). When a state exercises its power over any item, it is asserting its authority over that item, i.e., it is claiming jurisdiction over that item. However, where an item constitutes a matter regulated wholly or partially by international law, a state as a subject of international law cannot legitimately exercise its power over that item unless the exercise is in harmony with the international law regulations. A brilliant study on domestic jurisdiction appears in Wright, \textit{Domestic Jurisdiction as a Limit on National Action}, 16 Nw. U.L.R. 11 (1961). Therein it is stated after an in-depth analysis of the subject that the domestic jurisdiction of a state is the residuum of a state's discretion outside of its obligations under international law. It is believed that this definition, though significant, is too elliptically put to be deemed completely correct. Jurisdiction becomes a meaningless term

\textsuperscript{72} Nationality Decrees Issued in Tunis and Morocco, supra note 71. On p. 23 of that case it was stated that "If the dispute between the parties is claimed by one of them and is found by the Council, to arise out of a matter which by international law is solely within the domestic jurisdiction of that party, the Council shall so report . . . " (emphasis added). On p. 31 the tribunal concluded that "the question (here) is one which, by international law, does not fall solely within the domestic jurisdiction of a single state." (emphasis added). From these statements, it may be concluded that, though the domestic jurisdiction of a state refers to that state's power over an item not regulated by international law (supra note 71), the domestic jurisdiction of a state over any item is itself a matter whose determination depends on international law. Hence, it is international law which determines the legally sanctioned extent to which items fall within a state's inherent power to act over them.

\textsuperscript{73} Note 71 supra.

\textsuperscript{74} Nationality Decrees Issued in Tunis and Morocco, supra note 71. It is stated therein on p. 24 that "it may well happen that, in a matter which, like that of nationality, is not, in principle, regulated by international law, the right of a state to use its discretion is nevertheless restricted by obligations which it may have undertaken towards other states." This \textit{dicta} indicates that the power of any state to act over a particular object is qualified not only by the principles of international law but as well by that state's treaties which relate to that object.

\textsuperscript{75} A brilliant study on domestic jurisdiction appears in Wright, \textit{Domestic Jurisdiction as a Limit on National Action}, 16 Nw. U.L.R. 11 (1961). Therein it is stated after an in-depth analysis of the subject that the domestic jurisdiction of a state is the residuum of a state's discretion outside of its obligations under international law. It is believed that this definition, though significant, is too elliptically put to be deemed completely correct. Jurisdiction becomes a meaningless term
sanctioned under international law. Since the power and discretion of a state must be exercised on the item, for the domestic jurisdiction of a state to exist over any item there must be an express or implied jurisdictional claim on the item. Thus, a state may act with valid authority vis-à-vis any locus, res, or persona so long as that state jurisdictionally claims that which it is legally affiliated with through a nexus sanctioned by the law of nations, and so long as that state is not in the contravention of any of its international duties through the mere postulation of its claim.

The definition of a state's domestic jurisdiction reveals that that concept is on one side of an equation, the other side of which is sovereign power delimited by the functions of nexus and international duty. From this definition a number of important corollaries follow.

One is that conventional and customary international law, and the general principles of international law as the almost exclusive sources of a state's international obligations, comprise one set of restrictives in the formula of two which circumscribes to legitimately limit a state's power to act over items.

Another corollary is that the various theories of territoriality, person-
ality, universality, protection, and special interest, as the major jurisdic-
tional bases recognized by international law, embody the second and
remaining circumscripive set. This latter corollary in turn presents its
own corollary. Since state boundaries are but an aspect of one of the several
recognized jurisdictional bases, it follows that a state's power to act with
valid authority is not constricted to their dimensions. The juridical theorem
that may be deduced from these propositions is that the domestic jurisdic-
tion of any state, i.e., its sovereign power impressed on any item with
legitimacy, extends to any item the jurisdictional claim of which does not
violate that state's convention nor any principle of international law and
which, in addition, is substantiated by a sanctioned jurisdictional basis, all
this notwithstanding either complete or partial extraterritorial features of
the item claimed.

Implicit in this discussion of a state's domestic jurisdiction is the propo-
sition that such jurisdiction is amenable to different degrees of postulation.
Two reasons support this. First, from the definition of domestic jurisdic-
tion itself, it is clear that the valid jurisdictional claim of any state over
a particular item does not mean *ipso facto* that that state enjoys an exclu-
sive and complete competence over the item it has claimed. It is highly

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84 The theory of personality is that jurisdictional basis permitted under international law upon
and through which a state's power may be impressed on an item, said basis relating power to item
under the nexus of nationality. It is used especially to claim penal jurisdiction, where authority
to prosecute is asserted by reference to the national character of the perpetrator or the victim.
The SS. *Lotus* case, P.C.I.J., Ser. A, No. 10, 2 HUDSON, WORLD COURT REPORTS 20 (1935), is
here pertinent, for it recognized that international law permitted that a state may claim penal
jurisdiction by reference to the nationality of the victim. See also, Draft Convention on Jurisdiction

85 The theory of universality is that jurisdictional basis permitted under international law upon
and through which a state's power may be impressed on an item, said basis relating power to item
under the nexus of custody. As is obvious, it is raised exclusively to claim penal jurisdiction. See,
L. & COM. 171, 198 (1969); Draft Convention on Jurisdiction with Respect to Crime, 29 AM.

86 The theory of protection is that jurisdictional basis permitted under international law upon
and through which a State's power may be impressed on an item, said basis relating power to item
under the nexus of national security. Without question, every State has the right to protect itself

87 The theory of special interest is that jurisdictional basis permitted under international law
upon and through which a state's power may be impressed on an item, said item being of manifest
special interest to that state, said basis relating power to item under the nexus of contiguity. One
of the most noteworthy expressions of this competence is found in Art. 24 of the 1958 Geneva
Convention on the Territorial Sea and the Contiguous Zone, T.I.A.S. 5619, where it was recog-
nized that a coastal state may exercise its power in a zone of high seas contiguous to its territorial
sea over certain items deemed of special interest to that coastal state. It should also be observed
that the United States has passed legislation premised on this jurisdictional basis. Pub. L. 89-678,
§ 1, Oct. 14, 1966, declares that "there is established a fisheries zone contiguous to the territorial
sea of the United States. The United States will exercise the same exclusive rights in respect to
fisheries in the zone as it has in its territorial sea, subject to the continuation of traditional fishing
by foreign states within this zone as may be recognized by the United States." 16 U.S.C. § 1091;
80 Stat. 908. The legislative history of this statute reveals that the fish in the contiguous zone
were of special interest to the United States, 1966 U.S. Code Cong. and Adm. News, 3284.

Though the special interest jurisdictional basis is popularly associated with high seas contiguous
to a state, there is no rule of international law restricting its operativeness to that item alone.
Since high seas airspace in its vastness bears physical resemblance to the high seas, no reason exists,
either in law or in fact, to suggest that the special interest jurisdictional basis can not appertain
to high seas airspace contiguous to a state.

88 Note 83 *supra*. The jurisdictional basis of territoriality includes within its framework not
just the land and water subject to the sovereignty of a state but as well the ships and aircraft
which fly the flag of that state.
possible that two or more states may lay claim to the same item, all such claims being validated under the language of the definition. And any claim jurisdictionally concurrent with another would, by nature, be a claim jurisdictionally less than exclusive and complete. Secondly, under the terms of the juridical theorem, it is clear that only those jurisdictional claims which are compatible with international laws are eligible for further consideration to determine their validity. Now, a state's claim of domestic jurisdiction over a particular item is incompatible with international law only when there is either a general rule of international law prohibiting its postulation or a customary rule of international law preventing the same. Claims, therefore, which are neither prohibited nor prevented, are compatible as required by the juridical theorem. Concretely, this means that where international law only disqualifies an exclusive and complete claim over a particular item, the postulation over the same item of a competence less than exclusive and complete possesses the requisite element of compatibility, and hence, constitutes a claim eligible for consideration as to its validity. The juridical theorem itself, then, evinces that the domestic jurisdiction of a state admits two basic degrees of postulation: that of exclusiveness and that less than such. And that which is less than such, because of that very quality, may be appropriately labelled a discrete claim.

Domestic Jurisdiction and High Seas Airspace. The disquisition on domestic jurisdiction reveals a theorem thereon and degrees thereof. On the issue of a state's competence in high seas airspace, both revelations become significant because, as was previously stated, if such competence were permitted, its permissibility could only be predicted upon a state's domestic jurisdiction.

The question demanding resolution is whether the domestic jurisdiction of a state can extend to high seas airspace and, if so, to what degree. The juridical theorem states in part that the domestic jurisdiction of a state extends to any item, regardless of its extraterritoriality, the jurisdictional claim of which does not violate the claimant's convention nor any principle of international law. On the status of high seas airspace, it is customary international law that all of such airspace may be used by every state to

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89 For example, where a crime is perpetrated on board an aircraft in-flight over the high seas, the flag state may claim penal jurisdiction under the theory of quasi-territoriality, the state of the victim may claim penal jurisdiction under the theory of passive personality, the state of the perpetrator may claim penal jurisdiction under the theory of active personality, and the state of landing may also claim under the theory of custody.

90 See note 75 supra.


92 The fact that a claim measures up to the necessary compatibility required of by the juridical theorem does not mean ipso facto that it is a valid claim; for, under the terms of the juridical theorem, its validity also depends upon its being substantiated by a permissible jurisdictional basis.

93 Id.

94 The term “discrete claim” is used here and used throughout as a word of art to signify any jurisdictional claim which is less than exclusive and complete and which is asserted over a particular object or activity for a specified purpose.

95 See text supra p. 701.
fly over the high seas and none of such airspace may be subjected to the exclusive and complete sovereignty of any power. From these two legal statements, comes the conclusion that the domestic jurisdiction of a state can extend to high seas airspace, but then, only through a discrete claim\(^9\) which neither impinges on the inviolable right of high seas overflight nor violates in any other way any other facet of international law.\(^9\) The judicial theorem also states in part that the domestic jurisdiction of any state extends to any item the jurisdictional claim of which is substantiated by a jurisdictional basis sanctioned under the law of nations. As a result, the complete statement of international law on the matter of a state’s competence in high seas airspace is that the domestic jurisdiction of any state extends to any portion of high seas airspace the discrete claim of which is: (1) compatible with the inviolable right of high seas overflight; (2) non-violative of any other principle of international law and (3) substantiated by an internationally permitted nexus. This being the law of nations, it is now possible to make an adequate examination into the legality under international law of those sovereign claims which have already been postulated over certain portions of airspace lateral to the high seas.

The Air Defense Identification Zones. The most notorious claims to a competence in portions of high seas airspace are those which have come from Canada and the United States. Since the respective claims of each country are basically the same,\(^8\) examination is made only of the American assertion.

On September 9, 1950, the Congress of the United States amended the Civil Aeronautics Act of 1938\(^8\) by addition of the following:

... to establish security provisions which will encourage and permit the maximum use of civil aircraft consistent with the national security, whenever the President determines such action to be required in the interest of national security, he may direct the Secretary of Commerce and the Civil Aeronautics Board to exercise the powers, duties, and responsibilities granted in this title ...\(^8\)

The amendment went on to state that:

The secretary of Commerce is authorized to establish such zones or areas in the airspace above the United States, its Territories, and possessions (including areas of land or water administered by the United States under international agreement) as he may find necessary in the interests of national security; and may ... by rule, regulation or order within such zones or areas, prohibit or restrict flights of aircraft which he cannot effectively identify, locate, and control with available facilities ...\(^8\) [emphasis added].

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\(^9\) Since it is customary international law that none of high seas airspace may be subjected to the exclusive and complete sovereignty of any state (See id. at 701), any claim of any part thereof must be discrete (note 93 supra) if it is in any way to be deemed valid.

\(^8\) See note 75 supra.

\(^8\) There is one difference between the respective claims of each country. It is mentioned infra note 120.

\(^8\) 49 U.S.C. § 1501 et. seq. (1938).


\(^8\) Pub. L. 81-770, Title XII, 1203, Sept. 9, 1950, 64 Stat. 825. Both § 1201 and § 1203 have since been repealed. In their place, however, have been substituted enactments substantially
Pursuant to this statute, an executive order was promulgated on December 20, 1950, directing the Secretary of Commerce to exercise those powers which were granted him under the same legislation. Seven days later, under the authority of that order, a number of administrative regulations were adopted and published. These regulations designated certain defined areas of airspace as air defense identification zones (ADIZ’s) and prescribed rules for them. These regulations, however, were subsequently superseded. Those which took their place and are now in force date from June 1963, and hail from equivalent statutory authority, and are in substance the same.

The 1963 regulations prescribe rules for operating civil aircraft into the United States through an air defense identification zone. This latter term is defined in the regulation as an area of airspace over land or water in which the ready identification, location, and control of civil aircraft is required in the interest of national security. The regulations then list a number of such airspace zones, delineating them geographically. Of those listed, two, the Atlantic Coastal ADIZ and the Pacific Coastal ADIZ are pertinent here since each represents a precisely bounded portion of airspace which is not only contiguous to one of the ocean coasts of the United States but also extends out from the coasts over the high seas to distances up to hundreds of miles.

The regulations prescribe two important rules which pertain to the coastal ADIZ’s just mentioned. One is that no person may operate an aircraft in or penetrate them unless he has filed a flight plan with an appropriate aeronautical facility. The other is that no pilot in command of a foreign civil aircraft may enter the United States through the ADIZ’s unless he makes the reports required by the regulations or gives the position of the aircraft when it is not less than one hour nor more than two hours average direct cruising distance from the United States. Because these rules are the most significant American impositions on high seas over-

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104 15 F.R. 9319, Part 620, § 2(b) (1950).
108 Such zones are popularly called ADIZ. As would be expected, the Canadian counterparts are called CADIZ.
109 14 C.F.R. 155, § 99.3(9).
110 14 C.F.R. 157, § 99.41 et seq.
111 14 C.F.R. 157, § 99.45(a) and (e). One of the points given to calculate the outer boundary line of the Atlantic coastal ADIZ is 39° 30’N., 63° 45’W., or some 500 statute miles from the coast of the United States.
113 14 C.F.R. 156. § 99.23.
flight, it would seem that they constitute the determinants of the precise jurisdictional claim the United States is making over portions of such airspace.

A careful re-reading of the two rules under consideration reveals that the second rule constitutes no attempt on the part of the United States to establish an American competence in any portion of high seas airspace. Nor, as some have contended,\(^{114}\) does its positional report based on a time-distance equation render the outer boundaries of coastal ADIZ's flexible. That rule only states that foreign aircraft not complying with its reporting requirements are barred entrance into the United States. Neither does it say that non-complying foreign aircraft are barred entrance into the coastal ADIZ's nor does it intimate that the outer dimensions of those zones are relative to the aircraft's velocity. Its prescription being solely a condition for entry into American airspace, that rule finds legitimacy only in the customary international law principle of *aer clausum*\(^{115}\) but also in article 11 of the Chicago Convention.\(^{116}\) And as a condition for entry, that rule has absolutely nothing to do with excluding any foreign flights from any portions of high seas airspace.\(^{117}\) As a result, any claim that the United States is making over portions of high seas airspace stems from the first rule alone.

The language of the first rule, together with the express scope of the regulations in which it is found has the effect of saying that no civil aircraft,\(^{118}\) domestic or foreign,\(^{118}\) which is en route to the United States,\(^{119}\) may penetrate a coastal ADIZ unless its flight plan has been previously filed with an appropriate aeronautical facility.\(^{120}\) Since the two coastal ADIZ's delineated by the regulations extend in places to several hundred miles out over the high seas, the United States, in its assertion that those contiguous air zones are closed off to certain foreign flights refusing to comply with its mandate, is in actuality laying claim to a competence over defined portions of high seas airspace.\(^{121}\) The issue, of course, is whether such pretension is legal.

**The Legality of the High Seas Airspace Claims.** There are two points of

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\(^{115}\) Since every state under customary international law has exclusive and complete sovereignty over its national airspace, every state may either preclude the entry of foreign aircraft into its airspace or attach to the privilege of such entry any condition precedent it so desires.

\(^{116}\) Convention on International Civil Aviation, Chicago (1944), 61 Stat. 1180, Art. 11 thereof states that "... the law and regulations of a contracting state relating to the admission to ... its territory of aircraft engaged in international air navigation ... shall be complied with by such aircraft upon entering ... the territory of that state."

\(^{117}\) *Ipsa facto* it constitutes no discrete claim to such airspace.

\(^{118}\) 14 C.F.R. 154, § 99.1(a) which states that these regulations "prescribe rules for operating civil aircraft ... into ... the United States through an air defense identification zone ... ."

\(^{119}\) Id.

\(^{120}\) Id.

\(^{121}\) 14 C.F.R. 155, § 99.11(a).

\(^{122}\) Stated in another way, the United States, through the first rule, is asserting its power over a particular item. This constitutes a jurisdictional claim. In passing, it should be mentioned that the Canadian regulations, unlike their American counterparts, prescribe compulsory positional reporting on the part of foreign aircraft which, though *not bound for Canada*, penetrate a coastal CADIZ; Canada, Dept. Trans., Air Services Branch, 22/55 RULES FOR THE SECURITY CONTROL OF AIR TRAFFIC § 2:1(c) (NOTAM 22, 1955).
discussion regarding the question of the legality of the American claim: one stemming from considerations of domestic law; the other from those of international law. On the domestic side, it would appear *prima facie* that the rule restricting flight in the coastal ADIZ’s as well as the regulations delineating their respective boundaries are invalid. The status which delegated power to the Secretary of Commerce to establish security air zones only authorized him to establish such zones “. . . in the airspace above the United States . . . (including areas of land or water administered by the United States under international agreement) . . .” Under no international agreement has the United States claim to any quantum of suzerainty over the waters of the high seas encompassed within the perimeters of its coastal ADIZ’s been recognized. It would seem, then, that those administrative regulations which fix the boundaries of those zones and which presume to control what flights may penetrate those zones are *ultra vires*, and hence invalid. Against such an argument, however, is the fact that the power delegated to the Secretary of Commerce to issue the security air zone regulation also emanated from an executive order. Notwithstanding the fact that the order cited the status in question as the express authority for its promulgation, that order in and of itself constituted a Presidential act. As such, its terms and mandates can be legitimized under the powers that obtain to the President of the United States through the Constitution. The President is commander and chief of the armies and navies under the organic law of the United States. As such, he possesses almost unlimited power and discretion to act in and over matters that pertain to national defense. Since the executive order under consideration explicitly declared that its directive to the Secretary of Commerce to establish security air zones was required in the interest of national security, the contention is strong that the adoption of the coastal air defense identification zones and the restrictive rules thereof was an act valid under domestic law as being within the scope of a delegation of proper and lawful executive power.

Assuming *arguendo* that the adoption of the coastal ADIZ’s regulations was an act of the Secretary of Commerce outside the scope of both the legislative and the executive authority delegated to him, it would not

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128 Notwithstanding the fact that this statute has since been repealed, argument will precede under it for the following reasons: (1) the legislation which was substituted in its place is substantially the same, 49 U.S.C. §§ 1521, 1523 (1950); (2) Executive Order 10814, Nov. 30, 1959, 24 F.R. 9565, which gives rise to the 1963 administrative regulations is substantially the same as Executive Order 10197, Dec. 20, 1950, 15 F.R. 9180 which gave rise to the 1950 administrative regulations; (3) the 1963 administrative regulations are substantially the same as their 1950 predecessors, 14 C.F.R. 154 part 99. In view of these facts, it is believed that use of this statute will avoid needless reduplication.

129 As an administrative rule or regulation which is broader than the statute empowering the making of rules cannot be sustained, 2 Am. Jur. 2d, Administrative Law, § 300 (1962).


131 Id. That order stated that “By virtue of and pursuant to the authority vested in me by § 1201 of the Civil Aeronautics Act of 1938, 52 Stat. 973, as amended by the act of Sept. 9, 1950 (Pub. L. 81-778), and having determined that this action is required in the interest of national security, the Sec. of Commerce is hereby directed . . .”


133 See note 126 supra.
follow *ispo facto* that those same regulations were invalid on the international level. Regardless of their legal status on the domestic plane, those coastal air zone regulations constitute in and of themselves *vis-a-vis* other sovereigns an American claim or assertion*¹²⁰* posited by the President as Chief Executive of the United States*¹²⁶* through his designee the Secretary of Commerce. (Even if it is argued that the adoption of the coastal ADIZ regulations was not originally authorized by the President, he has long since ratified them through acquiescence.*¹²¹*) As Chief Executive of State,*¹²²* the President of the United States is vested with the authority to represent the United States and to speak and act for it on the international level.*¹²³* He has done this through the presentation of the coastal ADIZ’s regulations.*¹²⁴* It is rudimentary that acts on the international level look for their validity on that level to international law alone.*¹²⁵*

The international legality of the American claim embodied in the coastal ADIZ’s regulations depends, then, on the claims, reconcilability with the statement of international law on the matter of a state’s competence in high seas air space. The position of international law on this matter is that the domestic jurisdiction of any state extends to any portion of high seas airspace the discrete claim of which is: (1) compatible with the inviolable right of high seas overflight; (2) non-violable of any other principle of international law; and (3) substantiated by an internationally sanctioned nexus.*¹³⁰*

The claim asserted by the United States over the high seas airspace encompassed within its coastal ADIZ’s is undoubtedly discrete.*¹³⁷* Simply put, it is a declaration by the United States that a coastal ADIZ may not be penetrated by any foreign civil aircraft en route to the United States unless its flight plan has been previously filed with an appropriate aeronautical facility.*¹³⁸* Since this does not seek to regulate every conceivable foreign flight which may penetrate a coastal ADIZ,*¹³⁹* the American

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¹²⁴ See note 122 *supra*.
¹²⁵ This comprises the power to admit new States resides in Congress. The President, on the other hand, is the constitutional representative of the United States in its dealings with foreign nations. From the former springs the power to establish State boundaries; from the latter comes the power to determine how far this country will claim territorial rights in the marginal sea as against other nations. From this authority, it is reasonable to argue that if the President has the inherent power to claim territorial rights in the marginal sea as against other nations, then *a fortiori*, he has the inherent power to claim American security rights in contiguous high seas airspace as against other nations.
¹³⁷ There can be no question as to the fact that the American regulations have affect on the international level because they operate to exclude from portions of high seas airspace the aircraft of foreign states which craft fail to comply with certain of their provisions.
¹³⁸ International law consists of a body of rules governing the relations between states; 1 HACK-WORTH, DIGEST OF INTERNATIONAL LAW 1 (1940).
¹³⁹ See text *infra* p. 707.
assertion is clearly one that is not susceptible either in theory or in actual practice to an interpretation of an exclusive and complete sovereignty.

The claim asserted by the United States over the high seas airspace encompassed within its coastal ADIZ's is compatible with the inviolable right of high seas overflight obtaining to every sovereign state. The administrative regulation which postulates the American claim pertains only to foreign civil flights on route to the United States. Consequently, the civil flights of any state not destined for the United States may penetrate and traverse the high seas airspace of a coastal ADIZ without concern with the American mandate. As to those foreign flights whose intent is to land in the United States, it cannot be said that the administrative regulation in question obstructs their high seas overflight freedom. On notice as to that regulation, they still seek the privilege of landing in the United States. Under such circumstances, their intended course to the United States constitutes voluntary assent to the prescriptions of the regulation.

Not only does the American assertion under study not contravene the customary international law rules specifically pertaining to high seas airspace, it is also non-violative of any of the other principles of international law. It is per se neither prohibited by a general rule of international law, nor prevented by a customary rule of international law. It is per se no infringement on either the territorial or quasi-territorial sovereignty of any foreign state.

For it to be internationally legal, the discrete claim may by the United States in ADIZ high seas airspace must be modified by one more attribute. The claim must have a basis sanctioned under international law.

The qualitative facet of the claim, i.e., the purpose served or the reason given for its postulation, is enunciated in the statute and the executive order from whose authority the claim apparently sprang. Both sources premise their delegation of power on the concept of national security. This is the major difference between the American regulations and their Canadian counterparts, note 120. This is not to say that the regulation is a condition precedent to the privilege of landing in the United States, and hence, validated under a principle of aer clausum. The regulation does not go to the penetration of American airspace. Rather, it goes to the penetration of a coastal ADIZ. This is all the more supported by the fact that, since December 27, 1950 (the institution of the regulation) to the present time, no state has lodged any diplomatic protest against the regulation in question; see, MCDougal, LASWELL and VLASIC, LAW AND PUBLIC ORDER IN SPACE 310 (1963). Those rules are to the effect that none of such airspace may be subjected to the exclusive and complete sovereignty of any power and all of such airspace may be used by every state to overfly the high seas. Id. at 37.

Since protection of the state is one of the several bases recognized under international law to support a state's jurisdictional claim, the purpose of

140 See notes 100 and 124 supra.

141 The S.S. Lotus, (1927) P.C.I.J., Ser. A., No. 10, 2 Hudson, WORLD COURT REPORTS 20 (1935). As far as it is ascertainable, no general nor customary international law rule exists which is to the derogation of the American assertion.

142 Since the American assertion is over the high seas, it in no way violates the territorial sovereignty of any state. For enunciation of the principle of territorial sovereignty, see the Corfu Channel case, I.C.J., 1949 INTERNATIONAL CT. OF JUSTICE REP. 4. Since the American assertion only affects foreign aircraft which of their own volition chose the United States as landing place, it in no way infringes upon the quasi-territorial sovereignty of any state.

143 Most appropriate here is Vattel's statement on international law that "a nation or state has a right to every thing that can secure it from such a threatening danger, and to keep to a distance
the American assertion in ADIZ high seas airspace readily finds legitimate approbation.

Vindication of the quantitative facet of the American claim remains the last point of proof for the establishment of that claim's international legality. That, of course, depends wholly on whether the specified extraterritorial locus of the claim is peculiarly associated with the United States through a sanctioned nexus. The locus involved is that portion of high seas airspace bounded on one side by an ocean coast of the United States and on the other by the designated outer limit of the appropriate coastal ADIZ. In places, the expanse of the locus as measured outward from the coast is well over a distance of several hundred miles. In view of the geographical position of the locus, there can be no serious doubt as to the fact that its proximity and contiguity render it of special interest to the United States, especially with respect to matters concerning national security and defense. Now, the concept of state's special interest in areas beyond its national boundaries but contiguous thereto has recently emerged as a basis recognized under international law sufficient to support the adjacent state's discrete jurisdictional claims over and in such areas. It does not, however, function per se to delineate the exact expanse of contiguous areas. As a result, whether it can be said that a security interest special to the United States extends to the full distances of its asserted coastal ADIZ's, is a problem the resolution of which may be effected only through recourse to the attitudes on that issue of the other sovereign states. Since the practices and interrelationships of other sovereign states make international law, their acceptance or denunciation of any part of the American pretension must thereby constitute great weight as to the permissible extent of its special interest. The United States has asserted its coastal ADIZ's for twenty years and no protests have been raised. Thus, it is reasonable to conclude that the special security interest that the United States has in contiguous high seas airspace extends to the full distances of its asserted whatever is capable of causing its ruin." 1 VATTEL, THE LAW OF NATIONS, § 19-20 (1st ed. 1758, repr., 1916).

148 See note 87 supra. A case whose dicta is impliedly premised on this concept is United States v. Louisiana, 363 U.S. 1, 33-34 (1960): "The high seas, as distinguished from inland waters, are generally conceded by modern nations to be subject to the exclusive sovereignty of no single nation. It is recognized, however, that a nation may extend its national authority into the adjacent sea to a limited distance for various purposes. For hundreds of years, nations have asserted the right to fish, to control smuggling, and to enforce sanitary measures within varying distances from their seacoasts. Early in this country's history, the modern notion had begun to develop that a country is entitled to full territorial jurisdiction over a belt of waters adjoining its coast. However even this jurisdiction is limited by the right of foreign vessels to innocent passage. The extent to which a nation can exercise its power into the sea for any purpose is subject to the consent of other nations, and assertions of jurisdiction to different distances may be recognized for different purposes." (emphasis added). As was pointed out in note 87 supra, the special interest jurisdictional basis may appertain to high seas airspace as well as to the high seas. Thus high seas airspace may be legitimately substituted for sea in the italicized portion of the above quote. The resulting principle is that assertions of jurisdiction to different distances in contiguous high seas airspace may be recognized as to the adjacent claiming state for different purposes.

149 Id. United States v. Louisiana, 163 U.S. 1 (1960); though allowing for assertions of jurisdiction to different distances, proffers no mathematical formula for the calibration of the precise distances of the assertion.

150 Note 148 supra.

151 McDougal, Lasswell and Vlasic, supra note 142.
coastal air defense identification zones. On the basis of this conclusion, the quantitative facet of the American claim finds substantiation.

The synthesis of the points made is that the discrete claim postulated by the United States in and over ADIZ high seas airspace is an assertion valid under international law. It is compatible with the right of high seas overflight; it is non-violative of any other principle of international law. Each of its integral parts is substantiated by a recognized nexus. Thus, airspace lateral to the high seas may be subjected to the domestic jurisdiction of a state if the claim thereover is reconcilable with the statement of international law on a state's competence in such airspace. It would seem, however, at least from what may be gathered on the subject from the American case study, that such reconcilability is most probably unattainable where the airspace in question is not contiguous to the claimant state.

III. STATES’ JURISDICTION IN AIRSPACE VERTICALLY TO NATIONAL TERRITORIES

The launching of satellites in the late 1950's as well as the U-2 incident of May, 1960 brought to the forum of legal discussion the issue of the vertical extent of national airspace. Since that time, there have been a myriad of proposals, urged for adoption, each differing from the next as to where the exclusive air jurisdiction of a state vertically ends. No response to the issue, however, has yet been proffered which manifests itself as a highly tenable solution de lege lata. The question, then, is

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152 see text supra p. 706.
153 A list of the more prominent proposals urged for adoption follows. Andrew G. Haley suggests that the von Karmen line should be adopted as the vertical limit of a state's national airspace. In essence, it represents the place in aerospace where aerodynamic lift is zero. Presently, that line is in the vicinity of 53 miles above the surface of the earth. Haley, however, cautions that, since airborne flight is in part a function of velocity and velocity is limited by heat friction, the line as presently drawn may be significantly changed as the result of such developments as improved techniques of cooling and more heat-resistant materials. HALEY, SPACE LAW AND GOVERNMENT 98-99 (1963). Gerhard Reintanz suggests that the altitude of 100 km. (62 miles) should be adopted as the boundary line between national airspace and outer space because one, the air is so thin that the propelling of aircraft becomes impossible, and two, earth satellites due to high frictional temperatures burn up at that altitude. REINTANZ, AIR SPACE AND OUTER SPACE, S. Doc. No. 26, 87th Cong., 1st Sess. 1138 (1961). John C. Cooper advises that 25 miles above sea level is the most appropriate altitude at which to fix the boundary of national airspace. COOPER, EXPLORATIONS IN AEROSPACE LAW 304 (1968). Gennadi Zhukov, one of the most important Russian space jurists, is of the opinion that no boundary solution is valid unless it adequately copes with the question of states' security. While not suggesting any specific altitude as the vertical limit of national airspace, he feels that the issue of the vertical extent of national airspace represents a problem whose solution is in the prohibition of military weapons in outer space. Zhukov, Space Flights and the Problem of the Altitude Frontier of Sovereignty, 1966 YR. BR. AND SPACE L. 483 (1968). Bin Cheng states that the boundary of the vertical extent of national airspace can only be achieved by means of a multilateral treaty. Cheng, The Extra-Terrestrial Application of International Law, 1965 CURR. LEGAL PROT. 148. Myres S. McDougall, Harold Lasswell and Ivan Vlasic are of the opinion that the issue of the vertical extent of national airspace is more readily resolved through a “functional approach” to activities in aerospace. McDougall, Lasswell and Vlasic, LAW AND PUBLIC ORDER IN SPACE 353-59 (1963). Spencer M. Beresford represents those who believe that effective control should determine the vertical extent of a particular state's national airspace. Beresford, Surveillance Aircraft and Satellites: A Problem of International Law, 27 J. AIR L. & COM. 107 (1960).

154 The various solutions that have been proffered have with one exception been proposals (de lege ferenda) as to where the vertical limit of national airspace should be. Only one answer to the problem, infra, has been tendered which pretends to resolve where the vertical limit is or must be as a matter of law. Indeed, there exists a jurisprudential prejudice that no answer to such problem
whether the vertical extent issue is presently amenable to solution of such calibre. If not, it remains moot until such future time as either custom or an international convention renders it closed.

The Vertical Terminus Ad Quem. It is the rule of customary international law that the airspace above the national territory of a state is within the complete and exclusive sovereignty of that state. International law, therefore, has made that part of aerospace of the regime aer clausum. It is the rule of customary international law that outer space is free for exploration and use by all states and not subject to national appropriation by claim of sovereignty or other means. International law, therefore, has made that part of aerospace of the regime res omnium communis. Since the airspace regime precedes the outer space regime on a line perpendicular to the surface of the earth, it becomes a deductive principle of international law that national airspace has a vertical terminus ad quem.

The significance of this deductive principle lies not so much in its almost obvious substance, as in its customary international rule premises. Those can be raised de lege lata, as evidenced in the statement that "the establishment of an authoritative frontier [between terrestrial space and outer space] . . . can only be achieved by means of a multilateral treaty." Cheng, The Extra-Terrestrial Application of International Law, 1965 Curr. Legal Proc. 148.

De lege lata is that legal term which means "concerning or with respect to the law as it is," as in contradistinction to de lege ferenda which means "concerning the law as it should be." A solution of such calibre, thus, is simply an answer express or implied in the law as it stands. The following will aid in a clearer understanding of the term. In 1958, Dr. Michael Milde, lecturer at the Faculty of Law, Charles University of Prague, Czechoslovakia, attempted to show that as a matter of international law there was no vertical limit to a state's exclusive jurisdiction in the aerospace above its national territory. His method was quite simple. Taking into consideration every rule of international law pertinent to his subject of inquiry, he proceeded to deduce from them, and from them alone, a rule on that subject which constituted their necessary conclusion. Thus, working completely within the system of international law, if his premises were indeed correct statements of the law and if his logic were sound, he would arrive at a proposition which was implied in the law as it stood; in other words, he would uncover an answer de lege lata. Now, notwithstanding the fact that he used a premise which was an incorrect statement of international law (namely, that a state has complete and exclusive jurisdiction in the space and not just airspace above its national territory), and therefore, concluded erroneously to the doctrine of usque ad coelum (see infra note 170), it becomes irrefragable in view of his method that usque ad coelum, regardless of its inharmonious relation to physical facts, would indeed have been a correct answer legally if the premise which was found incorrect actually had been correct; as such, it would then stand as the law until such time as either custom or convention effaced it. See Milde, Considerations on Legal Problems of Space Above National Territory, 5 Rev. of Contemporary Law (Brussels, Belgium), 5-22 (1958). The purpose here is to examine international law to see whether the issue of the vertical extent of national airspace can be resolved de lege lata.

158 Chicago Convention, Art. 1, 61 Stat. 1180. This article as the formalized expression of customary international law. See note 20 supra.

156 See note 6 supra. Under customary international law, a state's national airspace is closed to the aircraft of other states in the strictest sense of the word. As Bishop states, "it seems clear . . . that aircraft are not entitled to innocent passage through the airspace above the territory or territorial waters of a foreign state, except by treaty. It is more probable that, even in the absence of treaty, aircraft may have a right of entry in distress in the airspace of a foreign state, but this is by no means clearly established . . ." BISHOP, INTERNATIONAL LAW 373, n.54 (1962).


158 Outer Space Treaty, Art. 2.

159 Terminus ad quem (literally, the end to which) is used herein as a word of art to mean "limit." It is chosen over the term "boundary line" because, though it may be discovered that the vertical limit of national airspace is actually a simple line in aerospace, it is also possible that that limit, once perceived, may best be expressed in terms of an activity or a function or even in terms of width.
statements reveal that the two aerospace regimes which they explain are but "constructs" of international law. Simply stated, this means that international law, and international law alone, erected those regimes and assigned to them their distinctive legal qualities; as such, they are mere creations of international law and no other system. Since the vertical terminus ad quem of national airspace is nothing more than the logical result of the very presentment of those two regimes in aerospace, it follows that that vertical terminus is itself a legal construct of the system of international law.

National airspace, as a matter of international law, has a vertical terminus ad quem. A logical deduction thereof is that such terminal, as a matter of that same law, is ascertainable. This is simply the conclusion that is necessarily implied from the nature of the system which gives rise to the terminus. Since the terminus is wholly a construct of international law, it is that system which alone can determine that construct's characteristics and particulars. One such particular, of course, is a defined position of the terminus in aerospace. Now international law is that type of system which can employ among its methods that which will set the vertical extent of national airspace at any altitude it arbitrarily chooses. It is a system, consequently, which possesses within itself the capacity to determine the aero spatial position of the vertical terminus. As a matter of international law, therefore, that terminus is ascertainable. This conclusion, moreover, is implicitly substantiated by high international authority; for, legion are the official statements that the terminus should be ascertained, and as well, the scholarly suggestions on where it should be fixed. This conclusion, however, stands as a non-significant statement of law unless it is shown to be apposite to the issue of the vertical extent of national airspace. It would seem that its relevance to the terminal ascertainment issue is found in the highly acceptable postulate that that which is ascertainable as a

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160 International law is indeed a system, for it consists of a body of rules which govern the rights, powers, and duties of sovereign states as among themselves, and hence, from which as well as entirely within which conclusions can be drawn on the legality or illegality of the acts and claims of those states as among themselves. It is important to note that international law is a dynamic system; i.e., not only it is a body of rules to establish order in the international community but it is also a process in and through which new rules and regimes are created. Indeed this rule-making facet of the system of international law is instigated into action by systems external to it, as for example, where the science of physics and the art of engineering produced the airplane with its security implications and the satellite with its non-appropriative implications for free space. However, though external systems impact international law to generate new rules and regimes to cope with their implications, it is the system of international law alone which determines what those new rules and regimes shall be. Hence, those rules and regimes are but creations of that system and no other.

161 The nature of the rule-making process of the international law system is closed and arbitrary; i.e., notwithstanding what the rule of law over a particular matter should be to establish order in view of new developments from systems external to international law, that system either through custom or convention can make any rule the law regardless of how unresponsive that rule is to order or to the realities of the situation. For example, international law could have decreed that outer space is of the regime res nullius, and thus, open for appropriation; or it could have decreed that national airspace extends usque ad coelum. It is a system, therefore, whose rule-making process may close itself off from other systems and their developments and arbitrarily set the rule. Of course, in practice, this rarely happens.

162 See note 153 supra.
matter of law becomes ascertained *de jure* where its ascertainment is the product of the legal system of which it is a construct.\(^\text{163}\)

A Systems—Approach to the Problem. So far, it may be stated that, as a matter of international law, national airspace has an ascertainable vertical *terminus ad quem*. That terminus, as was previously pointed out, is a legal construct of international law. It is that system of law, consequently, which determines and assigns to the terminus its characteristics and particulars.\(^\text{164}\) Since a defined position in aerospace is such a particular, it may be concluded that the ascertainment of the national airspace terminus is a matter solely of and solely for international law. This being the case, it follows that that ascertainment is alone systematically correct which conforms to the prescriptions of international law on all matters that are intrinsically related to the subject of the national airspace terminus.\(^\text{165}\) Thus, the interrogatory is, to what jurisdical theorem must the ascertainment of the vertical terminus be compatible for it to be valid under international law.\(^\text{166}\) The question impliedly but wholly addresses itself to a larger subject of inquiry, that of the international law on aerospace regimes,\(^\text{167}\) and specifically therein, to conclusions on the distinct legal characteristic of each aerospace regime either ascertaining it or distinguishing it from its co-relatives; for, it is only from a composite knowledge of those legal characteristics that it is theoretically possible to legitimately formulate a juridical theorem pertaining to terminal ascertainment; for, the aerospace regimes, being distinct legal constructs in a series perpendicular to the surface of the earth, necessarily have distinct legal characteristics which ascertain or distinguish them among themselves.\(^\text{168}\) Those characteristics,

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163 There can be no solution *de lege lata* of the issue of the vertical extent of national airspace without all parts of that solution being either rules, corollaries thereof, postulates, or juridical deductions from the international law system. A solution wholly *de lege lata* can only be valid if it keeps within the system of which it pretends to be a product.

164 It stands to reason that that system which constructs an item is alone capable of giving modification to that item.

165 Note 163 *supra*. Since the ascertainment of the vertical terminus of national airspace is a matter solely of and solely for international law, it is a matter that has no significance nor even existence outside of that system. As such, if it is to be determined *de lege lata* and not through a multilateral convention, such determination must be consonant to all other matters in that system which are intrinsically related to it.

166 This is the question that must be asked if solution is to be *de lege lata* rather than through multilateral convention.

167 The aerospace regimes contemplated here are simply those concerned with outer space and airspace. Though a third aerospace regime may exist, no such regime need be mentioned until such time as it is shown that the vertical *terminus ad quem* of the airspace regime is not necessarily identical to the *terminus a quo* of the outer space regime. If and when that is shown, a remainder regime may then be postulated.

168 The legal regimes of aerospace, because they are distinct legal constructs in a series perpendicular to the surface of the earth, form a legal constructual system. As integral parts of a system, specifically, that of aerospace from the perspective of international law and not science, those legal regimes are of necessity systematically related.

As a distinct legal construct, a regime has, or at least in theory has, a distinct legal characteristic which goes to its ascertainment; i.e., some legal modifier that manifests where the principle of that regime operates. It is possible, however, that such characteristic may be incapable of being unequivocally perceived (183 *infra* note). Notwithstanding this possibility, an aerospace regime, by the very fact that it is systematically related to its co-relative regime(s), in addition to what already has been mentioned, is also marked by a distinct legal characteristic which goes to its "systems-distinguishment," i.e., a legal modifier that contrasts that regime with its co-relatives of the same constructual system.
then, stand in relation to each other. Since a terminus \textit{qua} terminus bears on that type of characteristic and since those characteristics afore-mentioned are relative to each other, it is reasonable to conclude that the juridical theorem being sought is not only implicit in the composite knowledge of those characteristics but also can not be deduced apart from that knowledge.

The Distinct Legal Characteristic of the Legal Regime of Outer Space.

Before the first orbit of a man-made satellite, there was no legal regime of outer space. To that time the doctrine of \textit{usque ad coelum} was probably the law with respect to states' jurisdiction in aerospace vertical to national territories. If that were so, it was simply because cosmic activity existed in the realm of human aspirations. The doctrine, without necessity for its projection into the physical regime of outer space, did not have to be carried to its kaleidoscopic conclusions, and hence, it remained undisturbed. But, upon the first orbit, whatever legal authority obtained to the \textit{usque ad coelum} principle abruptly evanesced. Its manifest irreconcilability with the nature of cosmic vehicular activity showed that it was totally incapable of establishing legal order in the physical regime of free space. The consensus of international authority was that its applicability to that area was repugnant.

Operative vehicular activity in an expanse of aerospace governed by a basic law of physics different from that which governs operative vehicular activity in that sector of aerospace relatively close to the surface of the earth was so profound that it caused international law to respond that that physical regime where the new vehicular activity was found was outer space a regime \textit{res omnium communis}. International law, therefore, made

\begin{footnotes}
\footnote{Id.}
\footnote{A terminus as a terminus marks the end of a legal regime, and hence, the end of any legal characteristic that modifies that regime.}
\footnote{Since the legal regimes of aerospace are not only distinct but as well systematically related (see note 166 supra), they have distinct legal characteristics which also are systematically related. Because of this and because of the fact that a terminus \textit{qua} terminus bears on those characteristics, it is believed that the formulation of a juridical theorem on the terminal ascertainment of aerospace regimes can be validly made only if it is the product of a "systems-approach" to the problem, i.e., only if it takes into consideration all the items intrinsically systematically associated with the concept of an aerospatial terminus. Resultingly, the composite knowledge of the distinct legal characteristics either ascertaining or distinguishing the aerospace regimes among themselves becomes an essential to a correct formulation of the juridical theorem.}
\footnote{The doctrine of \textit{usque ad coelum} is that a state's complete and exclusive jurisdiction in aerospace vertical to its national territories extends upward to infinity. The doctrine was espoused for the legal regime of outer space by Michael Milde, Considerations on Legal Problems of Space above National Territory, 5 Review of Contemporary Law 16-22 (1958). See note 15 supra.}
\footnote{Since the earth rotates on its axis, acceptance of the doctrine would mean that the aerospace subject to a state's complete and exclusive jurisdiction would change with each passing second.}
\footnote{"Operative vehicular activity" is that vehicular activity which is the stable, effective and efficient function of a particular law of physics. The operative vehicular activity of outer space is the stable, effective and efficient vehicular activity of satellites and probes.}
\end{footnotes}
the legal regime of outer space congruent to the physical regime of outer space. Simply put, this means that the newly established regime modifies that area of aerospace wherein vehicular activity is a function of the physical laws of gravitational forces. Now the dominant physical characteristic of the physical regime of outer space is embodied in the operation vehicular activity therein. In view of the aforementioned congruence, it is reasonable to conclude that that factor also embodies the distinct legal characteristic ascertaining that legal regime of outer space; for, not only did it lead to the establishment of that legal regime but also, and far more important, without the existence of that factor, it becomes impossible to know where the outer space principle of *res omnium communis* applies.

**The Distinct Legal Characteristic of Legal Regime of Airspace.** The search for the distinct legal characteristic either ascertaining the legal regime of national airspace or distinguishing it from the outer space legal construct, is actually the search for that type legal characteristic of airspace itself. This proposition comes from the fact that international law not only states that every power has complete and exclusive sovereignty in the airspace above its national territories but also states that the high seas airspace is open to all states for overflight and closed to their absolute sovereignty. In making airspace *per se* the object of its pronouncements, international law has established it as the legal genus of two distinct legal regimes. In such legal context, then, airspace *per se*, being the sum of two legal constructs, is itself a construct of international law; and as such, with respect to those legal factors that are common to both national and high seas airspace regimes, stands as a legal regime in aerospace, albeit generic. Since no special rule of international law obtains to the upward extent of either of the integral regimes of the airspace regime, there is no reason in law to suggest that the upward extents of both the national and high seas airspace regimes are not identical to that of their genus the airspace regime which is a legal construct itself systematically limited by the very presence of the legal regime of outer space. Now the distinct legal characteristic either ascertaining the airspace regime or distinguishing it from the legal regime of outer space is a matter intimately connected with the upward extent of the regime it modifies. It would seem to follow, then that that characteristic can not but be embodied by a legal factor common to both legal species of airspace.

Before the first aerodynamic flight there was no legal regime of *aer clausum*, because up to that time, operative vehicular activity in airspace lateral to national territories had as yet not developed to instigate problems of competence. With the development of aerodynamic flight, however, few states felt that a doctrine of air freedom in their super-adjacent airspace inured to their security. International law soon decreed

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177 Chicago Convention, Art. 1, T.I.A.S. 1591; see also note 20 supra.
178 See note 60 supra.
179 See note 169 supra.
180 See note 154 supra.
that the airspace above the national territories of a state fell within that state's complete and exclusive sovereignty. The most significant thing about this rule is the fact that it was the direct result of and the legal response to operative aerodynamic flight and its concomitant security implications. Prima facie, then, those two items may be said to constitute the most salient legal factors of the national airspace regime. The principle of states' security, however, has developed to the point where its theoretical applicability is now extraterritorial; and hence its once intrinsic relation to national airspace is Practically evaporated.

In addition to its prescription on national airspace, international law also states that the airspace above the high seas is free and open to all states for high seas overflight. The most significant thing about this rule is the fact that it is framed wholly in terms of and concerned solely with operative aerodynamic flight. Since the concept of states' security is in no way related to this rule, it may be concluded that the only legal factor common to both the national and the high seas airspace regime is the operative vehicular activity of aerodynamic flight. And as the only common legal factor, it is the embodiment of the distinct legal characteristic distinguishing the airspace regime from the legal regime of outer space because outside of that factor, there exists no other legally tenable basis upon which to distinguish.

183 Chicago Convention, Art. 1, T.I.A.S. 1591; see also note 20 supra.

184 A legal factor is an item intrinsically associated with a particular law either through its history or through its letter that legal analysis of that law can not be adequately effected without that item being taken into consideration.

185 "It is today generally recognized that proximity is a relative concept and that the location of potentially harmful activities has become of decreasing importance for the protection of various exclusive interests of the state," MCDougal, LASWell & VLASIC, LAW AND PUBLIC ORDER IN SPACE 287 (1963); also, COURTLAND, THE INTERNATIONAL LAW OF OUTER SPACE 126-29 (1966). It seems that the jurisprudential conviction is that the activity of a state in the insurance of its security is not restricted by international law to the locus of its national territories.


187 As a distinct legal construct, a legal regime of aerospace has, or at least in theory has, a distinct legal characteristic which goes to its ascertainment, i.e., some legal modifier that manifests where the principle of that regime operates. Thus, once perceived, it evinces where the terminus of that regime lies, for by nature such characteristic is positional. It is possible, however, that such characteristic may be incapable of being unequivocally perceived, as is shown infra. Where that is the case, recourse may be had to the distinct legal characteristic distinguishing that aerospace regime from such other regimes, see note 168 supra. Though this latter characteristic does not evince through itself where the terminus of the regime it modifies lies, its knowledge is of essence in an indirect ascertainment of that terminus; see note 169 supra.

Above, it is not stated that the vehicular activity of aerodynamic flight embodies the distinct legal characteristic ascertaining the legal regime of airspace, but rather that which distinguishes that regime from the legal regime of outer space. This is so because the legal regime of airspace includes within itself the legal regime of national airspace and international law is to the effect that every state has complete and exclusive sovereignty in the airspace above its national territory. Thus, without considering the vehicular activity of aerodynamic flight, it is possible to know where the principle of aer clausum has effect, at least laterally. The term airspace, however, is itself incapable of embodying the ascertaining distinct legal characteristic, for it is not nor can it be vertically defined de lege lata. The conclusion, then, is that neither through the vehicular activity of aerodynamic flight nor through the term airspace can there be discovered the clear and unequivocal ascertaining legal characteristic of the legal aerospace regime under consideration.

As a result, in an attempt to ascertain the vertical terminus of the airspace regime by indirect method (see note 171 supra) recourse is had to the distinguishing legal characteristic which in this case is the vehicular activity of aerodynamic flight, for outside of that factor, there is no other legally tenable basis upon which to distinguish.
The Juridical Theorem on Thermal Ascertainment. The foregoing provides a sufficient basis in law for the discovery of the juridical theorem on the terminal ascertainment of atrospace regimes. To recapitulate, that material says in effect that: (1) The operative vehicular activity peculiar to the physical regime of outer space embodies the distinct legal characteristic ascertaining the legal regime of outer space, a legal construct coincident with that physical regime, and (2) that the operative vehicular activity of aerodynamic flight, as the only legal factor common to the legal regimes of national and high seas airspace, embodies the distinct legal characteristic distinguishing the generic legal regime of airspace from the legal regime of outer space. Now operative vehicular activity in outer space is the product of law of physics distinct from that which effects operative vehicular activity in that sector of aerospace relatively close to the surface of the earth. It embodies, therefore, that law of physics, specifically, the law of gravitational forces. On the other hand, the operative vehicular activity of aerodynamic flight is the product of the principle of aerodynamic lift. It embodies, therefore, that particular law of physics. Resultingly, it may be concluded that those two distinct physical laws, as they relate to vehicular activity that is operative, are actually the distinguishing respectively the legal regime of outer space and that of airspace. Together, then, those physical laws as they relate to vehicular activity that is operative comprise the composite knowledge of those characteristics. Previously, it was stated that the juridical theorem on terminal ascertainment of aerospace regimes is a legal formula not only implicit in the composite knowledge of the distinct legal characteristics either ascertaining or distinguishing the various aerospace regimes but is also a formula incapable of being deducted apart from that knowledge. In view of this, it becomes reasonable to conclude that the juridical theorem on terminal ascertainment of aerospace regimes is that the terminus of a legal regime of aerospace is that altitude in aerospace the locus of which is the theoretical limit of the law of physics peculiar to that regime at which and not beyond which operative vehicular activity which results from which that law can be effected.

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186 See note 171 supra. The study of the legal regimes of aerospace clearly shows that those regimes are intimately connected with vehicular activity that is operative, not inoperative.

187 See text supra p. 717.

188 Several points should be made to clarify the meaning of the theorem. First, the theoretical limit of law of physics peculiar to an aerospace regime to effect operative vehicular activity means that altitude beyond which stable, effective and efficient vehicular activity a function of that law is "physically impossible" notwithstanding any future or even imagined forms of improved vehicular technology and engineering. This can be best explained by analyzing the principle of aerodynamic lift to effect operative aerodynamic flight. Presently, aerodynamic lift ceases at an approximate speed of 25,000 feet per second and an altitude of about 275,000 feet. However, upon future development of more heat-resistant materials attached to the vehicle, the altitude of aerodynamic lift may be increased. The theoretical limit mentioned above is that altitude beyond which aerodynamic lift can not effect operative vehicular activity regardless of what future or even imagined forms of improved vehicular technology or engineering are either developed or postulated. In other words, it is the altitude in aerospace where the laws of physics make operative vehicular activity as a function of aerodynamic lift physically impossible.

A second point that should be made is precisely this, that the theoretical limit is exactly that, the limit. This can best be explained by resort again to aerodynamic lift. Simply put, that principle is where air supports the weight of a vehicle and thus enables it to be airborne. Science has
The theoretical limit of the physical law of aerodynamic lift to effect operative vehicular activity which is a function of that law is a point of inquiry as yet unresolved. Though that limit is believed to be in the vicinity of 53 miles above the surface of the earth, its exact calculation has not been scientifically ascertained. Nonetheless, its postulation is hardly less than, if not itself, a scientific fact. As a result, when that limit is ascertained scientifically, it will constitute as a matter of law the vertical terminus of the generic regime of airspace, and hence, the vertical terminus of the legal regime of national airspace; for that terminus as a matter of law is ascertainable, and as was previously mentioned, that which is ascertainable as a matter of law becomes ascertained de jure where its ascertainment is the product of the legal system of which it is a construct. Now, under considerations of the judicial theorem, the theoretical limit of the principle of aerodynamic lift to effect operative vehicular activity is an item coterminus with the vertical limit of the legal regime of airspace. Thus, international law has made the scientific ascertainment of the theoretical limit the instrument for the legal ascertainment of the legal terminus. In this perspective, such ascertainment is the product of international law and when made it will, therefore, constitute the de jure terminus of national airspace.

It is suggested here that there is a solution de lege lata to the issue of the vertical extent of national airspace. That which is believed correct has discovered that the atmosphere contracts at night and expands during the day; that it is higher over certain portions of the earth than over others. The implication is that the vertical limit of aerodynamic lift is relative. In regard to this or any like phenomena of the atmosphere, "theoretical limit" as used in the juridical theorem means the extreme altitude in aerospace beyond which operative vehicular activity a function of aerodynamic lift is physically impossible.

A third and final point that should be mentioned is that the law of physics peculiar to the aerospace regime to be demarcated is, with regard to its use in the juridical theorem, nothing other than a key legal element in the terminal ascertainment of that aerospace regime. To reduce this to specifics, this means that the principle of aerodynamic lift, the law of physics peculiar to the legal regime of airspace under considerations of international law, is a legal determinant for the ascertainment of the vertical terminus of that regime. The implication of this is quite clear. The fact that other vehicular activity not a function of that law is present in the legal regime of airspace (as for example, the vehicular activity of rockets a function of the law of action-reaction) is simply a fact irrelevant and immaterial to the legal ascertainment of the vertical terminus of the legal regime of airspace.

It is to be carefully noted that 100 miles is not given here as the theoretical limit of the principle of aerodynamic lift to effect operative vehicular activity. Rather, it is given to show that that limit is scientific fact. It is more than probable that such limit is at an altitude in aerospace much much lower than 100 miles, and most probable that it is in the vicinity of 53 to 70 miles above the surface of the earth.

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191 Id. The postulation that there is a theoretical limit of the physical law of aerodynamic lift but not beyond which operative vehicular activity which results from that law can be effected seems quite sound scientifically in view of the following evidence. Taking an altitude of 100 miles from the surface of the earth, scientists are agreed that the air is too rarified to support the weight of an aircraft regardless of the velocity it might achieve due to future developments in heat-resisting materials which may be applied to the aircraft. Also, at an altitude of 100 miles from the surface of the earth, the mass of a body is under the dominant influence of the Kepler effect (centrifugal force) and the gravitational pull of the earth (centripetal force) unless that body is moving at that velocity critical to escape the earth's pull. In that latter event, its movement is the function of the law governing rocketry specifically the law of action-reaction.

It is to be carefully noted that 100 miles is not given here as the theoretical limit of the principle of aerodynamic lift to effect operative vehicular activity. Rather, it is given to show that that limit is scientific fact. It is more than probable that such limit is at an altitude in aerospace much much lower than 100 miles, and most probable that it is in the vicinity of 53 to 70 miles above the surface of the earth.
been tendered. If it is indeed correct, then, that solution tendered constitutes the law on that subject of inquiry until such time as either the custom or the convention of states either modifies, alters, or effaces it. Previously it was mentioned that a prior, though incorrect, attempt was made to resolve the issue under consideration de lege lata. It was stated there that, if it had been correct, its conclusion would have been the law notwithstanding the fact that a conclusion of usque ad coelum was incongruous to the physical realities of aerospace, and therefore, incapable of establishing any semblance of legal order over it. It is to be pointed out, however, that such conclusion, even if it were correct de lege lata, would have enjoyed a most unusually short life-span, for the custom of states since the beginning of the space age readily ran contrary to its position. Here, in direct contrast, it is suggested that the solution tendered above is not only correct de lege lata but is law which should neither fall to the gauntlet of incongruity nor perpetrate legal chaos. In fact, its purport is seemingly sanctioned by the attitude of states and even possibly their custom. Hence, it would seem that the thesis argued for here stands as more than a tenable answer to the terminal issue. Nonetheless, if science were to eventually show that such solution is repugnant to the physical realities of aerospace or productive of legal chaos, then most assuredly that answer will find its repudiation in the attitude and the custom of states. And in that eventuality, since the solution tendered is perceived of as law, a legal void will arise which will most probably be dispelled by a multilateral convention arbitrarily setting a vertical boundary for national airspace.

IV. States' Jurisdiction in Aerospace Beyond the Legal Regime of Airspace

The Possibility of a Remainder Zone in Aerospace. In the previous discussions on states' jurisdiction in aerospace only the legal regimes of airspace and outer space have been considered for the simple reason that

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195 Correct in the sense that the premises which led to it are valid within the system of international law as well as in the sense that the logic involved in its deduction is sound.

196 That which is an answer de lege lata is itself the law on a particular matter because that which is de lege lata is simply the expression or the necessary implication of the expression of the law as it stands; supra note 154. Here, it is maintained that the solution proffered on the terminal ascertainment of national airspace is as a matter of the system of international law. Since the custom and the convention of states are the two predominant sources of law in the international legal system, it follows that they alone are capable of legitimately altering that which is already deemed law in their system.

197 See note 154 supra.

198 Id., see also note 171 supra.


200 See text infra p. 723.

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international law, as examined therein and up to this point, reveals but those two legal regimes. This, however, should not hasten a conclusion that a third legal regime in aerospace can not be legitimately postulated.

Under the juridical theorem on terminal ascertainment of aerospace regimes, the vertical *terminus ad quem* of a regime is that altitude in aerospace the locus of which is the theoretical limit of the law of physical peculiar to that regime to effect operative vehicular activity which is a function of that law. The law of physics peculiar to the legal regime of outer space has been said to be that of gravitational forces and the law of physics peculiar to the legal regime of airspace, that of aerodynamic lift. Science, however, has as yet determined neither that limit respecting the law of gravitational forces nor that respecting the principles of aerodynamic lift as those laws relate to operative vehicular activity. Presently, therefore, the vertical terminus of neither legal regime stands as legally ascertained. Notwithstanding this fact, since the aforementioned laws of physics become the terms of measure under the juridical theorem, it is clear that three and only three possible conclusions can be reached under that theorem regardless of what calculations science eventually makes. One possible conclusion is that the theoretical limit of aerodynamic life coincides with the theoretical limit of the law of gravitational forces so that the legal regimes of airspace and outer space find separation in a simple line. However, from what can be gathered today from the body of science, this seems highly remote. A second possible conclusion is that the theoretical limits of both physical laws under consideration overlap so that under the juridical theorem the legal regimes of airspace and outer space can not be distinguished over a particular sector of aerospace. Though correct as a solution *de lege lata* to the problem of vertical terminal ascertainment of the airspace and outer space regimes, such conclusion would most assuredly be repudiated by the states of the world. Thereupon, it would remain to a multilateral treaty alone to dispense with the issue of where the legal regime of airspace ends and that of outer space begins. It is to be noted, however, that this second possible conclusion, like its predecessor, seems quite unlikely. Science to-date indicates that operative aerodynamic flight beyond 60 miles above the surface of the earth and operative gravitational flight below 80 miles above the same are highly improbable. It is these very scientific indications, moreover, which lead to the third and last possible conclusion which can emanate from the juridical theorem; namely, that the theoretical limit of the principle of

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203 See text supra p. 721.
204 See text supra p. 721.
205 See generally note 186, supra. The limit of operative orbital flight under the law of gravitational forces and the limit of operative aerodynamic flight under the principle of aerodynamic lift have simply not as yet been worked out by science.
206 It is legitimate to speak of the beginning of outer space as its terminus or ending, for what is the terminus is simply a matter of perspective.
207 See note 188 supra.
208 See text supra p. 723.
aerodynamic lift to effect operative vehicular activity a function of that law precedes that of the physical law of gravitational forces with the result that there remains in aerospace a zone neither of the legal regimes airspace nor outer space, but lying between them. If ever presented, such remainder zone, being nothing more than the logical result of the legal ascertainment of the respective boundaries of two legal constructs, would itself stand as a legal construct. Its legal status, or phrased more concretely, the law on states’ jurisdiction thereover and therein, would therefore be a matter solely of and solely for international law. The question, of course, is what would that law be if such remainder zone were eventually presented. Since a remainder zone, if ever presented, would constitute an item necessarily implied from the international law system, it would seem to follow that the legal rules on states’ jurisdiction thereover and therein must necessarily be laws implied as well from that system.

The legal regime of outer space makes that part of aerospace which is subject to that regime res omnium communis; i.e., a thing free and open to all sovereign states, an item over which or over any part of which no state may claim any degree of jurisdiction. The legal regime of airspace is of two parts: (1) that of national airspace, and (2) that of high seas airspace. Pertinent here is the former. The legal regime of national airspace makes that part of aerospace which is subject to that regime aer clausum; i.e., a thing closed and shut to all but one sovereign state, an item over which the subjacent state has complete jurisdiction to the exclusion of all other states. Now, only that part of aerospace which is legally deemed outer space has been declared res omnium communis. Under strict considerations of law, the remainder zone, if presented, would not constitute a part of the legal regime of outer space. As a result, it can not be said that any part of that zone is necessarily of the same status as that of the legal regime of outer space. To be considered as well, is the point that only that part of aerospace which is legally deemed national airspace is of a status aer clausum, this for the reason that the national airspace regime is in law restrictive in its extent. Under strict considerations of law, the remainder zone, if presented, would not constitute a part of any airspace regime. As a result, it can be said that no part of that zone is in any way of the same status as that of the legal regime of national airspace. Thus, what is implied from the international law system on the legal status of a remainder zone is that none of such aerospace may be

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210 Jurists have referred to such zone as “the contiguous zone of aerospace;” see Cooper, Explorations in Aerospace Law 316-27 (1968); McDougal, Lasswell, Vlasic, Law and Public Order in Space 336 (1963); Schrader, National Sovereignty in Space, 17 MIL. L.R. 41, 1 (1962).

211 See note 163 supra.

212 This is nothing more than the method that was used in the discussion on states’ jurisdiction in high seas airspace and the method that was explained in terms of “system” in the discussion on the vertical extent of national airspace.

213 See note 176 supra.

214 See text supra p. 698.

215 This is to say, under considerations of the juridical theorem on the terminal ascertainment of airspace regimes, a theorem whose substance is implied in the international law system.

216 See note 67 supra.
subjected to the complete and exclusive sovereignty of any state but that all of such aerospace, at least all in theory, is liable to the domestic jurisdiction of any state if claim thereunder is less than exclusive and complete. Under what terms of law a discrete claim in the remainder zone would be legitimate becomes, of course, another matter of inquiry. Its resolution, it would seem, should be in the juridical theorem on the domestic jurisdiction of a state, a theorem first raised in the discussion on high seas airspace.

The juridical theorem on the domestic jurisdiction of a state is that the domestic jurisdiction of any state, i.e., its sovereign power impressed on any item with legitimacy, extends to any item the jurisdictional claim of which does not violate that state's convention nor any principle of international law and of which, in addition, is substantiated by a sanctioned jurisdictional basis, all this notwithstanding either complete or partial extraterritorial features of the item claimed. According to the law implied on the subject, any jurisdictional claim over any portion of the remainder zone must be discrete; i.e., one less than complete and exclusive. Resultingly, that discrete claim of a state over any portion of the remainder zone is lawful and legitimate if: (1) it is in itself non-violative of international law, and (2) it is substantiated by a jurisdictional basis sanctioned under international law. Of the major jurisdictional bases recognized by international law, however, only two appear to be in any way applicable to the item of a remainder zone in aerospace: specifically, the competence of protection and the competence of special interest. The basis of protection, however, as it relates to an area of expanse like that of high seas airspace or remainder zone aerospace, would seem not in itself sufficient to alone support a discrete claim over any portion of such area; for it being an essentially qualitative concept as it relates to an area of expanse, through it alone, no dimensions on a claim-over would be possible. And without dimensions, claims over areas would not only burgeon into jurisdictional chaos but as well would stand meaningless in law. It would seem, then, that if the concept of protection is to be put to an area of expanse like a remainder zone, its ambit must be defined. Now, protection, or more properly, the police power that it signifies, has been recognized in international law not just as a jurisdictional basis per se but as the major, if not the sole justification for a claim made under the jurisdictional basis of special interest. Of significance, this latter competence, with its element of contiguity, avoids an argument of dimensional vagueness. Under these considerations, it is reasonable to conclude that that portion of remainder zone aerospace which is contiguous to national

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217 See note 94 supra.
218 See text supra p. 704.
219 See text supra p. 704.
220 VATTLE note 86 supra.
221 Without dimensions, it becomes impossible to speak of or even conceive of an area claimed, and therefore, without dimensions, it becomes impossible to relate a state's jurisdiction to area.
222 VATTLE, note 87 supra. The discussion on states' jurisdiction in high seas airspace is directly to this point.
223 Id.
airspace is amenable to the jurisdictional claim of the subjacent state for purposes of public health and safety. Yet, this being the only apparent manner of legitimate jurisdictional claim in the remainder zone, no reason exists in law to suggest that beyond due consideration for such claims, nonetheless, any state is forbidden to freely fly through such zone.

State Jurisdiction Over and in Outer Space. It is elementary that the legal regime of outer space makes that part of aerospace which is subject to that regime res ommunum communis;\(^{224}\) i.e., aerospace over which and over any part of which no state may claim any degree of jurisdiction. Outer space is in law a res free for exploration and use by all states,\(^{225}\) such activities themselves being deemed by law the province of all mankind.\(^{226}\) States' jurisdiction in outer space has been simply relegated to flag jurisdiction,\(^{227}\) which is the type of authority exercised on the high seas by states. It is to be noted that the rule is that, in the exploration and use of outer space, states must conduct their activities reasonably; i.e., with due regard to the corresponding interests of all other states.\(^{228}\) But contrary to some juristic opinions,\(^{229}\) there is no hard and fast rule of law that in outer space states' activity must be exclusively for peaceful purposes.\(^{230}\) There is only the duty binding on only those states part to the Outer Space Treaty not to place in outer space either nuclear weapons or any other type of weapons of mass destruction.\(^{231}\) Of course, where the issue is put in terms of lawful purposes, then, judgment on a particular activity in outer space

\(^{224}\) See note 176 supra.

\(^{225}\) The Outer Space Treaty declares as general principles of international law that (Art. 1) “outer space shall be free for exploration and use by all states and that (Art. 2) outer space . . . is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”

\(^{226}\) The Outer Space Treaty, Art. 1, states among other things that the exploration and use of outer space . . . shall be the province of all mankind.

\(^{227}\) The Outer Space Treaty, Art. VIII, states that “a state party to the treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object and over any personnel thereof, while in outer space . . . “

\(^{228}\) The Outer Space Treaty, Art. IX, states that “in the exploration and use of outer space . . . states party to treaty shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities in outer space . . . with due regard to the corresponding interests of all other states party to the treaty.” It is contended here, however, that the prenounced in Art. IX is not just applicable to party states but as well to all states in the international community because where an area is deemed in law res ommunum communis, it is deemed an area common to all so that all states have the same rights and duties therein; resulting, no one state is privileged to act in such manner as to impinge in any way upon the common right of all other states in that area. Every state, therefore, by the very legal nature of the area of outer space, must exercise its common right with due regard for the same common rights of all other states. So phrased, this is every state's duty.

\(^{229}\) Carl Q. Christol is of the opinion that it is the rule of international law that outer space can only be used for peaceful purposes. It is believed his thesis would be correct if it were not for Art. 4 of the 1967 Outer Space Treaty; see note 228 supra. CHRISTOL, THE INTERNATIONAL LAW OF OUTER SPACE 178-210 (1966). In direct opposition to Christol stands M.S. Vazquez who contends that a proposition that outer space must be used exclusively for peaceful purposes is strictly de lege ferenda. Vazquez, Cosmic International Law 149-61 (1965).

\(^{230}\) Art. 4 of the Outer Space Treaty states only that the moon and other celestial bodies shall be used by all states party to the treaty exclusively for peaceful purposes. The omission of the term “outer space” from the above sentence was deliberate and was so commented on with regret by several delegates; see U.N. Doc. A/AC. 101/C. 2/3R 62, 24 Oct. 1966, Legal Subcommittee, p. 4.

\(^{231}\) The Outer Space Treaty, Art. 4.
may be made based on the general rules and principles of international law binding on all sovereign states.222

Conclusion

The subject of states’ jurisdiction in aerospace under strict considerations of international law has been examined with the purpose of revealing all significant legal rules and principles pertaining to that matter of inquiry. First, it was shown that, as a matter of international law, the airspace lateral to national territories is of the status aer clausum; i.e., aerospace subject to the complete jurisdiction of the subjacent state to the exclusion of all other states. Ingress therein by such other states was said to be lawful only when made pursuant to treaty permission. Discussion then centered on states’ jurisdiction in high seas airspace. It was shown that portions of such airspace were amenable to the discrete jurisdictional claims of states provided such claims met certain legal requirements. Argument to this effect was made by first uncovering the legal status of high seas airspace. That status, in part implied from certain express rules in international law, was then related to the juridical theorem on states’ domestic jurisdiction, a principle in whole implied from various such rules. Following this, examination was made on the subject of the vertical extent of national airspace. It was stated in terms de lege lata that the vertical limit of any aerospace regime is that altitude in aerospace the locus of which the theoretical limit of the law of physics peculiar to that regime at which but not beyond which operative vehicular activity which is a function of that law can be effected. This principle, called the juridical theorem on terminal ascertainment of aerospace regimes, was argued for as necessarily implied from a number of rules and principles in international law. Finally, the subject of states’ jurisdiction in aerospace beyond the legal regime of airspace was considered. It was first pointed out that a possible logical result of the juridical theorem on terminal ascertainment was a remainder zone. If ever presented, such zone, vis-à-vis states’ jurisdiction therein, would be similar in consideration to high seas airspace. Rules for that zone, therefore, were necessarily implied. This discussion ended on the subject of outer space, its legal regime being res omnium communis, states’ jurisdiction therein being flag.

These various conclusions of law, when taken together, are such as to provide an answer to any significant question on the subject of states’ jurisdiction in aerospace. But transcending their practical value to international law is clearly the import of the method upon which most of those rules were educed, for it is that method which underlines a source of international law not before expressly enunciated as such.

222 Art. 3 of the Outer Space Treaty says that “states party to the treaty shall carry on activities in the exploration and use of outer space . . . in accordance with international law.” The substance of Art. 3, however, is such as to transcend the treaty and thus be applicable to all states of the international community. This is so because, it being the international law system which created the legal regime of outer space, it can not but be that system which provides the rules of law for that regime.
The major sources of international law have been said to be custom, convention, and the general principles of law. When taken together, the rules from these sources constitute what is normally called the law of nations or, quite simply, international law. It happens however, that international law does not have express rules on all matters that are appropriate subjects for its pronouncements. It is very likely, however, that that which is necessarily implied from an express rule is highly applicable to a matter on which international law can in theory rule but on which international law has in actuality remained silent. Now that principle or rule which is the necessary inference of an express rule is nothing more than a corollary of that express rule. Since a corollary flows naturally from its proposition, no reasonable argument can be made that the same authority and binding quality that modify an express rule of international law do not modify the corollary of that expression. This being the case, it is legitimate to go further and say that the necessary inference of a corollary itself, or that of a corollary and one or more express rules, or even that of two or more corollaries, is itself a principle of international law which is authoritative and of binding quality. Theoretically, this dialectical process can be carried out *ad infinitum*. International law then is a system; i.e., it is a body of express rules, their corollaries, and the necessary inferences and implications thereof, all of which may be syllogistically handled among themselves to provide rules for a matter which is an appropriate subject for international law pronouncement but upon which international law has been reticent. Argued, then, is the point that the international law system itself is a source of international law rules, it being on the same plane as custom, convention, and the general principles of law.
NASA'S BILATERAL AND MULTILATERAL AGREEMENTS —
A COMPREHENSIVE PROGRAM FOR INTERNATIONAL
COOPERATION IN SPACE RESEARCH

BY GEORGE S. ROBINSON†

I. THE SPACE PROGRAM PEAKS AND DIPS

THE LOWEST authorized funding in seven years for the National
Aeronautics and Space Administration was requested by President
Nixon for Fiscal Year 1971.\(^1\) After the mission failure of Apollo 13 in
April 1970, the manned lunar program—originally scheduled for eight
additional missions by the end of 1972—will likely be reduced in number
and stretched out for a period of two years or more to at least 1974.\(^2\)
Employment by NASA will be reduced approximately 50,000, from
190,000 to 140,000. The agency’s Electronics Research Center in Cam-
bridge, Massachusetts, has been forced to close due directly to budgetary
constraints.\(^3\) The Mississippi Test Facility is soliciting extrinsic business as
a means of keeping the facility operational until fatter budgets are once
again in hand, and the unmanned Viking probes to Mars will be slipped
from 1973 to at least 1975. All of these operational curtailments and pro-
gram slippages are only a few of the more obvious manifestations, not of
public disenchantment with NASA and the space program, but of the
country’s economic state and President Nixon’s apparent serious intent
“... to reorder the government’s spending priorities to concentrate on
domestic, earth-bound problems.”\(^4\)

Much, if not most, attention on the space budget by the Congress and
the Administration has been focused on the manned programs. Basic, but
essential unmanned research, has suffered a good deal also, but not from its
own merit (or lack of merit). One suspects that many unmanned research
missions have been sacrificed substantially to fill the gap in manned mis-
sions left by budget cuts. Two of the principal beneficiaries of this re-
ordering of priorities within the space program are the proposed manned
orbiting space station and the various space shuttle systems.\(^5\) In any event,

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\(^{1}\) For a discussion of this appropriations request, see Normyle, NASA Budget Hits 7-year Low,


\(^{3}\) See Normyle, NASA to Close Electronics Center, 92 AV. WK. & SPACE TECH. (1970). See
also NASA's Troubles, 41 NEW SCIENTIST 140 (1970).

\(^{4}\) Hamilton, supra note 2.

\(^{5}\) See Manned Space Flight, SPACE/AERONAUTICS 13 (1970), wherein an optimistic view is taken
of manned missions in the future. Apparently, the concept of space stations, which was endorsed
by the President’s Space Task Group, is an indication to some observers that “U.S. astronauts
clearly [are] on a course ... for Mars.”
despite NASA's comparatively severe budget restrictions, the program emphasis still appears to be on manned missions and systems support. In view of this emphasis, the question being asked with increasing frequency by many scientists is how are the all-important unmanned science and technology research missions to be financed during the present era of economic inflation and belt-tightening? The answer may well rest with the careful nurturing and expansion of a program of international cooperation already existing in NASA since the late 1950s, but which has been forced into the role of a very poor cousin to the much more exotic Moon race.

II. THE HISTORY OF NASA'S INTERNATIONAL PROGRAM AND COOPERATIVE PROJECTS

The National Aeronautics and Space Act of 1958, as amended, provides in part that "[t]he aeronautical and space activities of the United States shall be conducted so as to contribute materially to . . . (7) cooperation by the United States and other nations and groups of nations in work done pursuant to this Act and in the peaceful application of the results thereof. . . ." To date, the principal political objective of NASA's international program appears to have been the demonstration that the United States is carrying out space research and exploration for peaceful purposes and is providing all of mankind with knowledge and understanding of his total spatial environment. To enforce this purpose substantively, NASA has very successfully provided foreign scientists and appropriate science-oriented agencies with numerous opportunities to participate in US space missions. The specific return on this type of investment is stated to be:

(1) Stimulation of scientific interest and technical competence abroad;
(2) Enlarged potential for contributions to the art;
(3) Access to foreign areas for measurements of global character or special geographic significance;
(4) Enhancement of satellite experiments by foreign ground-support programs;
(5) Development of cost-sharing and complementary space programs; and
(6) Extension of ties among scientific and national communities.

In order to solicit foreign as well as domestic proposals from the scientific community for a particular mission, NASA distributes a document entitled Announcement of Flight Opportunities (AFO), in which the specific technological capabilities and constraints, operational characteristics, science objectives, etc., are described in some detail. Occasionally, "guest observer" opportunities are available in addition to principal investigator experiments. A reasonable period of time is provided for scientists to work

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7 On 12 September 1962 President John F. Kennedy made a speech at Rice University in which he emphasized NASA's priority for the next decade as placing a man on the Moon by 1970.
up a proposal and submit it to the appropriate reviewing body within NASA for evaluation and categorization based upon merit.\(^\text{10}\) Insofar as non-domestic proposals are concerned, the foreign scientists are quite often at a distinct disadvantage in competing with U.S. scientists for the rare and much coveted satellite flight opportunities.\(^\text{11}\) Among the principal disadvantages, not necessarily in order of frequency or intensity, are:

1. The language barriers involved in translation of scientific and technological theories proposed;
2. The time-consuming need to designate a central civilian agency in each country, from which a foreign proposal originates, to serve as (a) distributor of AFOs and (b) sponsor of proposals submitted to NASA from scientists of that foreign country;\(^\text{12}\)
3. The variation in seasons around the world whereby some scientists receive AFOs rather quickly, and others may be in the midst of vacation months or religious holidays (AFOs are premised upon the United States' seasonal calendar). In an environment of intense competition, seasonal variations can be quite a detrimental factor to some competitors on the wrong side of the Equator or the world;
4. Scientists in the United States, because of their physical location, have closer contact for the most part with NASA and its staff (as well as the capacity to clarify problems or issues quickly as they relate to a given proposal) than do most foreign scientists; and
5. Members of the NASA "in-house" science staff, who also compete quite vigorously for flight opportunities, have the best understanding of the type of science experiments desired, as well as the attendant limiting factors. A thorough understanding by NASA personnel of the intricate proposal submission and selection procedures provides a substantial edge on competitors. An understandable need to build and maintain a superior in-house science research capability may also contribute to a possible biased view of those committees involved in selection procedures. This may well be a luxury the United States civilian space program no longer can afford if international cost-sharing in space research projects is to become completely effective; particularly in view of the costs to foreign scientists simply of formulating and submitting a proposal.

Despite these possible inequities and intricate procedures, which are no longer totally responsive to the realities of financing domestic as well as

\(^{10}\) For the basic handbook setting forth initial space flight opportunities and the procedures necessary to submit proposals, see NASA-NHB, OPPORTUNITIES FOR PARTICIPATION IN SPACE FLIGHT INVESTIGATIONS 8030.1A (April, 1970).

\(^{11}\) For obvious reasons, flight opportunities are sought after among scientists intent upon submitting the best proposals. However, various types of missions provide innumerable opportunities for ground-based investigations. For example, International Satellites for Ionospheric Studies (ionograms depicting characteristics and perturbations of the ionosphere) can be received by anyone with proper ground station equipment and coordination with the satellite controller. The more dramatic example is the lunar sample program of NASA whereby 193 principal investigators and team members experimented with lunar soil returned by Apollo 11 and Apollo 12. Of the Apollo lunar sample program to date, 54 foreign scientists had their proposals accepted and served as principal investigators. Much of the residue lunar soil from the initial investigations can be used in subsequent analysis for different properties and characteristics.

\(^{12}\) See NASA-NHB, MEMORANDUM CHANGE 29 8030.1A (June 11, 1970) wherein it is stated that "[p]roposals for participation by individuals from outside the United States should be sent first to the official national space agency in their country. After review, the agency will then forward the endorsed proposal to the NASA Office of International Affairs, after which it will go through the same evaluation and selection procedure as a US-originated proposal. Should the proposal be selected, NASA will arrange with the sponsoring national space agency for the proposed participation on a cooperative (no exchange of funds) basis. NASA and the foreign sponsoring agency will each bear the cost of discharging their respective responsibilities."
international cooperative space research, NASA has developed a highly successful international cooperative program. As of January 1970, the total number of countries entering into agreements with NASA was 35. Twenty-five countries have entered into cooperative project agreements, and twenty-one are involved in agreements for satellite tracking and data acquisition. The total number of countries in which scientists participate with NASA in cooperative associations is 74, of which 71 are involved in ground-based programs and 39 in personnel exchanges.

The specific cooperative space activities are satellite and probe projects (Canada, France, Germany, Italy, United Kingdom and the European Space Research Organization—ESRO), coordinated satellite projects (Soviet Union and the United Kingdom), foreign experiments on NASA satellites (France, Italy, Netherlands and the United Kingdom), and cooperative sounding rocket projects (Argentina, Australia, Brazil, Canada, France, Germany, Greece, India, Israel, Italy, Japan, Netherlands, New Zealand, Norway/Denmark, Pakistan, Spain, Sweden and the United Kingdom).

Additionally, a multitude of countries have participated in ground-based projects such as meteorological satellite data readout and automatic picture transmission reception, communications satellites—ground stations, applications technology satellites—ground stations, geodetic satellites—ground stations, laser observations, ionospheric satellites—ground stations, cooperative balloon soundings, and airborne meteorological observations. Cooperative aeronautics research has involved Canada, France, Germany and the United Kingdom. Manned space flights have involved cooperation with Switzerland, France, Israel, Germany and the United Kingdom. Earth resources survey projects have been conducted with Brazil, Mexico and Canada, as well as in cooperation with the International Biological Program. NASA also has provided satellite design assistance and tracking support for foreign spacecraft, as well as several reimbursable launchings of foreign satellites. A joint review of space biology and medicine is being prepared for publication by the USSR Academy of Sciences and NASA.

Finally, NASA has furthered the goals of international cooperation by providing exchanges of scientific and technical information—through documents, microfilm and computer search materials—with 280 organizations (informal exchange arrangements), and an additional 109 organizations in 62 countries (exchange services). Consistent with this type of

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13 These inequities do not necessarily exist in those situations in which a foreign country submits an unsolicited proposal for a given spacecraft design and scientific or experimental technological mission. In such circumstances, if the basic proposal is acceptable to NASA without substantial modification, most competitive inequities are effectively mitigated.

14 This figure, and those immediately following in the text, are found in NASA, International Programs, supra note 9.

15 The stated number of countries cooperating in manned space-flights does not include countries with which NASA (Dept. of State) has search, rescue and tracking overflight agreements; nor does it include those countries with sponsor scientists participating in the lunar sample program.

16 Additional cooperative agreements between the USSR and NASA include communications satellite experiments in the ECHO program; coordinated launchings of national meteorological satellites and date exchange; and launchings of national satellites equipped for magnetic measurements and exchange of processed data.

17 The countries cooperating with NASA in some nonpassive, substantive manner, are listed
exchange, NASA has sponsored more than 422 resident research associate-
ships for foreign scientists from 37 countries; 244 international fellow-
ships from 29 universities representing 20 countries; 481 opportunities for
technical training of scientists representing 18 countries (including ESRO)
which have agreed cooperative projects with NASA.

III. NASA's Guidelines for International Cooperation

International activities of NASA encompass important broad as well as
specific guidelines in establishing bilateral and multilateral cooperative rel-
ationships. Basically, these broad guidelines—or operating parameters—
recognize the non-military needs and interests of foreign scientists, as well
as those of the United States. Specific requirements for each project are:

(1) Each participating government must designate a central civilian agency
to negotiate and administer cooperative efforts. This requirement arises
principally from the fact that both large and small space research pro-
tests tend to be very complex and expensive and, consequently, neces-
sitate assurances of financial and professional responsibility. Further, not
only is it proper for NASA to deal on an intergovernmental basis
(through the Department of State), it also permits the agency to avoid
the pitfalls of dealing with personalities. As indicated previously, space-
flight opportunities for experiments occur only infrequently with intense
rival interests competing for them. Consequently, NASA avoids a host
of embarrassing international problems, as well as a multitude of time-
consuming, specious foreign proposals, by extending cooperation to for-
eign scientists and agencies who, or which, are sponsored by their gov-
ernments.

(2) The proposed project must be of scientific validity and mutual interest,
and the necessary level of scientific competence must exist. The require-
ment of scientific validity provides NASA with the first step toward
ensuring any cooperative undertaking is in support of, and consistent
with its own overall program. Further, it ensures that the developing
space program of a given country is realistic in view of NASA's own
experience as an advanced space research agency. The requisites of mutual
interest and scientific competence help ensure, respectively, that (a) the
benefits are substantive and flow in both directions and (b) once the
project is undertaken it will not fail from the implementation of an
unrealistics space program and scientific overreaching. All of these re-
quirements are instrumental in ensuring that international cooperative
projects are established only for purposes of science, and will not de-
gerate into international political accommodation.

(3) Technical agreement on a specific project must be reached before a

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as follows: Argentina, Australia, Austria, Bahrain, Belgium, Bolivia, Brazil, Burma, Canada, Ceylon,
Chad, Chile, China (Rep.), Colombia, Costa Rica, Cyprus, Czechoslovakia, Denmark/Greenland,
Ecuador, El Salvador, Ethiopia, ESRO countries, Finland, France/Guadeloupe/Tahiti, Germany,
Ghana, Greece, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan,
Kenya, Korea, Madagascar, Malaysia, Maldives Islands, Mauritius, Mexico, Netherlands, New Zealand,
Nigeria, Norway, Pakistan, Peru, Philippines, Poland, Portugal/ Angola/Mozambique, Qatar, Sene-
gal, Singapore, South Africa, Southern Rhodesia, Southern Yemen, Spain, Sudan, Sweden, Swiss-
erland, Tanzania, Thailand, Turkey, United Arab Republic, United Kingdom/Antigua/Ascension
Island/Bermuda/Cayman Island/Fiji Islands/Grand Bahama/Hong Kong, Uruguay, USSR, Ven-
ezuela and Zambia.

18 Concisely, the project "would represent experiments... which NASA itself would wish to
carry out if they were not being done jointly."
formal agreement can be negotiated. Hopefully, this ensures that "promise will not exceed fulfillment. . . ."

(4) No exchange of funds will take place in implementation of a cooperative project. As provided in "Policy Guidelines for NASA International Scientific Cooperation," in the files of NASA's Office of International Affairs, this requirement is designed to assure that the fundamentals of cooperation are achieved literally, and are] consistent with the policy that the United States helps nations willing to help themselves . . . [E]ach cooperating nation is expected to assume full financial responsibility for its own efforts. Each nation funds that portion of a given cooperative project which represents its own commitment of staff or material. However, the respective inputs of the cooperating parties need not be financially equivalent.\textsuperscript{19}

(5) The results of the cooperative efforts must be made available, in a reasonable period of time and through the usual channels, to the international scientific community. This, of course, is reference to publication of experiments, findings and conclusions, with priority considerations of the normal protection afforded the interests of the Principal Investigators.

IV. INITIATION OF A PROPOSAL AND THE FORMAL AGREEMENT— "UK #4" AS TYPICAL

In its initial stages a cooperative aeronautics or space research project will not derive from a set formula or predetermined procedure. It may assume the form of an unsolicited proposal from foreign agency, or simply a foreign scientist. It may result from a proposal by NASA to space research authorities in other countries. NASA grants and research contracts might evolve into a basis for an international project. More often than not, proposals will arise as natural extensions of existing programs, generally envisioned through scientific and technical discussions at the working level. Concisely, proposals can, and do, find their origins in many different sources.

Once a proposal has undergone rigorous evaluation and modification during informal meetings of scientists and administrators representing NASA and the other interested agencies, formal negotiations will commence based upon the proposal definition established at such meetings. Usually, by the time negotiation of a formal agreement is reached, accord already has been attained on the principal decisions. Bargaining over attendant implementing provisions and sources of damage liability often are all that remain.

Formal agreement to establish a cooperative project with NASA will take the form of a "Memorandum of Understanding" or a "Letter of Agreement." Since the Letter of Agreement ordinarily "is used for the simpler, shorter duration projects and to modify the terms of earlier Memoranda of Understanding," emphasis herein is upon the substantive

\textsuperscript{19} Detailed discussions of the five basic guidelines, outlined herein, may be seen in the Policy Guidelines for NASA International Scientific Cooperation, referred to in the text. For further elaboration of such guidelines and attendant policy, see NASA, Policy Directive 1362.1B (1970); INITIATION AND DEVELOPMENT OF INTERNATIONAL PARTICIPATION AND COOPERATION IN AERONAUTICAL AND SPACE PROGRAMS 2 (Oct. 24, 1968) (general guidelines).
content of the Memorandum. However, NASA considers that: “[b]oth forms of agreement are simple statements of the intent of each party to exercise its best efforts to perform and are not contractual in force” [Emphasis added.].

In the ensuing discussion of the provisions normally found in a NASA Memorandum of Understanding, a document referred to in short-hand style as the UK #4 agreement will be used as an example. UK #4 refers to the subject of the agreement which is the fourth satellite in a series fabricated by United Kingdom scientists and engineers under the sponsorship of the British Science Research Council. It will be placed in a specified orbit by a NASA launch vehicle approximately in 1972, and will carry experimental instrumentation of both UK and US scientists.

The opening paragraph of the "Memorandum of Understanding between the British Science Research Council and the United States National Aeronautics and Space Administration" provides, in part, that the two responsible agencies “affirm their mutual interest in carrying out a fourth joint satellite project for peaceful scientific purposes.” Basically, this is a protocol statement of affirmation whereby stress is placed upon the intent of the agencies, as well as the peaceful—not military—scientific objectives of the undertaking.

The statement of objectives provides a brief introduction to the mission, which is:

a cooperative project to launch a scientific satellite during the period 1971-72 to explore interactions among the plasma charged particle streams and electromagnetic waves in the upper ionosphere. In this project a NASA Scout vehicle will be used to inject the British satellite into a near-polar, circular orbit from the United States Western Test Range.

This provision also incorporates the mission description (U.K. satellite, U.S. launch vehicle and orbital characteristics) and the timing of the mission (1971-72). Often, project timing is kept flexible to accommodate setbacks and work slippages which experience has taught almost invariably occur. Although not applicable to the UK #4 agreement, a phasing provision often appears in a Memorandum of Understanding and refers to a series of missions in a project to occur over a relatively defined period of time; e.g., a series of sounding rocket launchings during a known period of meteorological variations or perturbations.

The statement of responsibilities provides that “to carry out this project, the SRC will use its best efforts to fulfill the following responsibilities . . . .” Listed thereunder are items dealing with such detailed matters as (1) designed, fabrication, integration, testing and transportation of the launch site of one flight-qualified spacecraft; (2) accommodation of a NASA energetic particles experiment on the spacecraft; (3) provisions and trans-

29 Id. at 3.
30 Responsibility for the first two satellites of the series (Ariel I, launched in 1962 and Ariel II, launched in 1964) rested with NASA’s Goddard Space Flight Center. Essentially, these two spacecraft served as the satellite fabrication training ground for UK engineers and scientists. Responsibility for the third satellite (Ariel III, launched in 1967) rested with the Royal Aircraft Establishment in Farnborough, England.
portation of agreed spacecraft ground checkout and project support equipment to the launch site; (4) supplementing NASA tracking and data acquisition services with the same services of the U.K., as required and feasible; (5) provision of sounding rocket payloads, vehicles, and launching services for payload testing, as mutually agreed; (6) provisions of telemetry tapes as required for data acquisition from the SRC experiments by the NASA Space Tracking and Data Acquisition Network (STADAN); and (7) reduction and analysis of data returned by the SRC experiments and participation with NASA in the comparison of data and analysis of the total result.

The NASA responsibilities basically are similar and flow from the SRC undertakings (e.g., provision of an energetic particles experiment for the satellite, provision of STADAN facilities, provision of telemetry tapes where necessary for UK data acquisition from the US particles experiment, reduction and analysis of data, etc.). The principal variation is that NASA will provide the launch vehicle and associated equipment.

The importance of the statement of responsibilities lies in the use of language such as “will use its best efforts,” which effectively voids any responsibility or liability, in terms of damages caused by inducement, on the part of either party to the other. Even under the most favorable circumstances it would be difficult for one party to disprove the contention of the other party that best efforts were put forth, but that Parliament or the Congress, for example, simply would not appropriate the necessary funds, or that cutbacks in overall appropriations forced funding emphasis upon another project or program of space research. This specific avoidance of responsibility/liability is consonant with the previously mentioned policy of NASA that Memorandum of Understanding is not intended to establish a contractual relationship between the participating parties. However, as a matter of international policy, this may evolve during bad financial times into embitterment of the party which first fabricates a satellite pursuant to a Memorandum of Understanding and then discovers that the launch vehicles will not be made available. Substantial sums will already have been expended on the study, design, fabrication and testing of a satellite which, unless another source of launch vehicle is found, will became a very expensive, scientific “white elephant.” It appears that, “no exchange of funds” provisions notwithstanding, some consideration should be given to a policy of review in determining the necessity of equitable contribution by the party not suffering damages; particularly if that party failed to execute stipulated responsibilities which precipitated the damages or losses suffered by the other party. The distinction made here is between performance and non-performance of a formal agreement, and the implementation of some mechanism to provide for equitable compensatory contributions in the absence of a penalty clause or specific performance under contract law.

A provision referred to as the flexibility caveat states that . . . “[i]t is understood that this project is experimental in character and therefore
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subject to change in accordance with changing technical requirements and opportunities.” This is a standard NASA provision for all cooperative projects. If it were not for the designed loose structure of the Memorandum of Understanding discussed more fully below, this provision could offer much difficulty to a cooperating agency. Many, if not most, cooperating countries have extremely limited funds for scientific research, and those funds that are available are the objects of strenuous competition among the various natural disciplines. The strain on appropriations caused by strong pressure from one party to the agreement to accommodate a new technique may well be an unacceptable strain. This provision, although basically intended to manifest an understanding that a given project must remain current with the technological state-of-the-art, serves also as one more convenient escape clause for withdrawal from an agreement under the questionable shroud of something legally agreed to in a “non-contractual” instrument.

If the flexibility caveat or the statement of responsibilities (i.e., use best efforts is abused, the ill-will generated may well overshadow any successful contention that a given Memorandum of Understanding is, in fact, a manifestation of a contractual relationship—mutual protestations to the contrary, notwithstanding. Put in another light, in times of plenty of flexible Memorandum of Understanding may be a very desirable instrument for permitting scientists and management personnel to implement the agreement without undesirable encumbrances. However, times of plenty peak and dip with frequent unpredictability. This fact, coupled with a formal understanding which does not accommodate damages and losses innocently sustained by one party through the voluntary acts of the other party, could lead to disastrous consequences in the form of ill-will arising from the effective frustration of all, or a portion, of a cooperating country’s space program.

Provision for designation of a project manager and a project scientist is very much in keeping with the philosophy and administrative policy upon which a Memorandum of Understanding is premised, i.e., once guidelines are established, let those responsible for implementing the agreement have a reasonably free hand in ensuring satisfaction of the basic objectives and completion of the mission. The UK #4 Memorandum of Understanding provides that:

> [e]ach agency will designate a Project Manager who will be responsible for coordinating the agreed functions and responsibilities of each agency with respect to the other. The Project Managers will be co-chairmen of a Joint Working Group whose [sic] members will be designated by the SRC and NASA. This group will be the principal mechanism for assuring the execution of the project. . . . [Emphasis added.].

The project scientists also are designated by each agency. They are responsible for ensuring close liaison between each other “in connection with the planning of the scientific experiments and data reduction and analysis.

The no exchange of funds provision has been outlined, above, as a sig-
significant component in the guidelines followed by NASA in promoting international aeronautical and space research cooperation. In the UK #4 agreement, it is provided that:

[...] there will be no exchange of funds between the SRC and NASA. Each agency will arrange to meet the cost of discharging its responsibilities, including travel and subsistence for its own personnel and transportation charges on all equipment and flight hardware for which it is responsible.

This provision puts the entire financial onus on each party for its own, mutually agreed upon, responsibilities. In fact, it is not as overwhelming to countries with minimal science research funds available as it appears to be *prima facie*. Requiring that each country "meet the cost of discharging its responsibilities . . ." does not mean necessarily that total project financing will be roughly 50-50. That may be a desired relationship, but one hardly designed to induce less developed countries to participate with NASA in significant, and usually quite expensive, space research programs. Other foreign national assets (not simply financing alone) are taken into consideration when NASA determines that a particular proposed cooperative project is worth the required expenditure; e.g., related scientific or technological expertise of foreign personnel, geographic location for best vehicle launching requirements and for achieving necessary orbital characteristics, etc.

NASA equipment may be loaned to a cooperating party$^{28}$ for the duration of a project, and training of foreign personnel necessary for the project may be made available, but for the most part a cooperating country is required to use its own resources and capabilities to execute its agreed responsibilities. Political alliance and favoritism is avoided studiously as being completely inappropriate for the advancement of peaceful space research in the best interests of all mankind.$^{24}$ Basically, the "no-exchange of funds" provision is designed to encourage legitimate participation, self-reliance (particularly by the less advanced countries) and strong competition of foreign scientists and research agencies involved in space exploration for their share of the research funds made available by their respective governments and other appropriate sources. Of course, the obvious benefit is that sharing of costs for commonly desired objectives permits the available research appropriations to be stretched over more projects than

$^{28}$ It should be noted that the emphasis on "aeronautics" in NASA is principally with research. See Space Act of 1958, § 103(1). The Federal Aviation Administration is the "line" agency for the safe and efficient flow of air traffic. 42 U.S.C. § 2452 (1958).

$^{24}$ NASA has often loaned such equipment as a mobile MPS-19 radar unit to countries involved in initial cooperative projects. It permits a country to become involved in an international space program, thereby avoiding the usual delay attendant to securing funds for space research equipment from a skeptical government of a lesser developed country. This is in addition to permitting effective ground tracking of sounding rockets—hitherto a prerequisite project for many countries—and developing experience in foreign personnel in handling that type of equipment.

$^{24}$ The Space Act of 1958, § 102(a) states that the "Congress hereby declares that it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind." However, this is not a blanket mandate for total and unrestricted cooperation between NASA and other countries. Much of the launch vehicle technology necessary for injecting spacecraft, probes, etc., into orbit or other flight paths, involves classified matter which may not be available to certain cooperating countries. A launch vehicle for peaceful purposes can become, with an adequate guidance system, a very effective missile for military purposes.
if they were attempted unilaterally. The one possible exception to the "no
exchange of funds" provision lies in the liability clause. This is discussed,
below, in context of the review of liability for damages and losses incurred
during, and as a result of, activities in furtherance of a formally agreed
cooperative project.

A third country participation provision states that "[b]oth agencies
agree that, subject to prior mutual agreement, third country participation
in this project may be arranged." This often is the secondary source for
multilateral Memoranda of Understanding, whereby a given Memorandum
is amended to include, as a cooperating party, a country or countries ulti-
mately determined to have necessary expertise, legitimate use for data
returned by a successful mission, some asset providing a need for data co-
ordination and/or analysis with that country. In short, third country
participation may result from a multitude of anticipated as well as un-
foreseen reasons. The protocol of including a third country as a cooperative
project participant usually, but not always, manifests itself in the less
formal Letter of Agreement.

The provision regarding data sharing by both parties also includes refer-
ence to protection of the first publication rights of the principal investiga-
tors. The UK #4 Memorandum of Understanding offers a standard
example of this provision:

Copies of the raw data attained will be available to the Science Research
Council and NASA. First publication rights will reside with the principal
experimenters for one year after launch. Following a period of one year,
records or copies of reduced data will be deposited with the National Space
Sciences Data Center and listed with the appropriate World Data Center.
Such records will then be made available to interested scientists, upon reason-
able request, by the World Data Center or other selected depository.

This statement represents the basis of NASA's policy of international co-
operation in space research for the peaceful uses by all mankind. Not only
is there the obvious agreement regarding the sharing of raw data among the
participating agencies, and the reasonable protection of principal investiga-
tors to be the first to publish results of their respective experiments, but
there also is provision for availability of records or copies of the reduced
data to all interested scientists throughout the world. Results specifically
are not to be limited only to participating agencies and those to whom
such agencies wish to pass along the data and records. This is confirmed
by the additional standard provision that:

[results of the experiments will be made available to the scientific commu-
nity in general through publication in appropriate journals or other established
channels. Preprints of scientific and technical reports and publications will
be placed in the National Space Sciences Data Center.

The liability provision is sufficiently circuitous and vague as to require a

The parenthetical phrase "upon reasonable request" is not intended to be a negative qualifi-
cation of free access to the records and data. It refers to such practical matters as the form in
which the information is desired, the amount of data and cost of retrieval and redundancy of
requests from the requests from the same sources for the same information, etc.
fairly comprehensive look at how participating agencies (in the present instance the British Science Research Council and NASA) intend to accommodate damage and losses arising from activities of the joint project. The provision, often causing serious confusion and difficulty within the context of the legal regime of a foreign participating country, appears to be fairly inflexible requirement at this time:

Each agency assumes responsibility for any damage to its employees, or other persons having the same nationality as it, in the course of the project. In the event of damage to persons not nationals of the United Kingdom or the United States of America for which there is liability under international law and the principles of the Treaty Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, the two agencies agree to consult promptly, as soon as a settlement has been reached of the issues of liability and compensation involved, on an equitable sharing of payments for each settlement. If agreement is not reached within 180 days, the two agencies will act promptly to arrange for early arbitration to settle the sharing of such claims following the 1958 model rules on arbitral procedure of the International Law Commission.

The principal difficulty of the requirement in the first sentence is that it raises the spectre of one agency being responsible for damages arising out of an activity over which it has little or no control. This could raise particularly acute fears if damage was anticipated from the malfunctioning of a large, sophisticated launch vehicle. Although the chance of a foreign participating country having its employees or citizens injured by a U.S.-launched vehicle is a de minimis issue, the spectre of substantial liability arising from third party injuries may be sufficient for a potential cooperating country to reject the provision, and perhaps the agreement altogether if the provision is required by either NASA or the US Department of State.

The first portion of the second sentence is confusing until it is recognized as a redundancy of what, in reality, actually exists, i.e., it provides that since international law covering this form of liability exists, then such international law will apply. At best, it is only a statement declaratory of international law and adds nothing of substance to the Memorandum of Understanding. This is particularly true if Memoranda are to remain as presently structured, i.e., drafted to accommodate somewhat general objectives with shifting, speculative and initially indeterminate means available for accomplishing those objectives. The approach adopted by NASA has been highly successful since the Memoranda do not include attempts to implement tightly binding contractual obligations—a probable impossibility in view of the inherently indeterminate nature of the implementing provisions for most cooperative projects.

26 See Dembling, A Liability Treaty for Outer Space Activities 19 AMER. UNIV. L. REV. 33 (1969), wherein the former General Counsel of NASA states, in part: "while the basis for assessing liability against launching parties seems fairly clear, there may be instances in which the connection of a particular state with a launching is so attenuated that it should not be considered a participant in the launching and therefore not liable for damage. Questions that might be raised in this connection are whether a state whose only connection with the launch is a minor experiment aboard the spacecraft; or whether a State which supplied only a small component in the spacecraft ... should be liable ..."
It might well be asked that if this part of the liability provision is, in fact, only declaratory of international law which applies under all circumstances, then what harm is there to including it? The answers are simple and practical: (1) it is confusing and tends to delay final negotiation of an agreement intended to be streamlined and highly functional in terms of permitting a reasonably free hand among scientists and management personnel to accomplish a very technical project; (2) the spirit and intent of applicable principles of international law are compromised by creating a special liability principle for injured employees or citizens of participating countries (a special liability often incompatible with the domestic law of such countries); and (3) it presents an erroneous aura of special contractual relationships between participating agencies. Since the basic policy guiding this type of Memorandum appears to be one of reliance only on intent and the use of best efforts to fulfill those intents, inclusion of the presently-worded liability provision is totally incongruous. In any event, a definitive liability arrangement must be concluded at the governmental level, i.e., an Executive agreement or a treaty—not an agency understanding of intent to use best efforts in executing flexible responsibilities.

The remaining language treatment of equitable contributions to judgment or settlement liability is appropriate for Memoranda of Understanding, but only to the extent it avoids a formal, and usually dilatory, negotiation of intergovernmental accord on the issue. If the U.S. Department of State agrees to the provision for settlement and liability contribution in a given memorandum, then it is an acceptable and binding provision from the point of view of U.S. law. The statement of arbitration is only a procedural expediency and appropriate for a loosely structured understanding—again, only if it has Department of State approval. It should be noted that this type of provision, while comparatively nominal, tends to give a legal complexion to the memorandum.

Several other lesser provisions are likely to appear in a NASA Memorandum of Understanding, and in fact do appear in the UK #4 agreement in the manner set forth below:

(1) The availability of funds caveat provides “that the ability of the SRC and NASA to carry out their obligations is subject to the availability of appropriated funds.” This, quite simply, is one more statement reconfirming the understanding that each participating agency is obligated solely to using its “best efforts” to accomplish its intended tasks.

(2) A provision may appear (not in the UK #4 agreement) which subjects efficacy of a given Memorandum of Understanding to an ultimate formal Exchange of Notes between the governments represented by participating agencies. Again, the Exchange of Notes is simply another means of confirming the fact that a government, represented by a particular agency, intends

27 Despite the fact that all parties enter into an agreement freely, and provisions reflect the parity of participants to conduct themselves in a specified manner, many of the agreements are not negotiated on an “at-arms-length” basis. The heretofore capacity of NASA to reject certain proposals, and seek other sources to attain research objectives, undoubtedly has led many cooperating parties not to negotiate too aggressively—and to tow-the-line in implementing an agreement, once negotiated.
to use its best efforts to accomplish its responsibilities as delineated in a Memorandum. It is a manifestation that a participating agency has the complete backing of its government in the cooperative project. It is a protocol not often relied upon except in very expensive space research undertakings where a close approximation to binding contractual relationships is desired.

(3) The final standard provision deals with the release of public information and is self-explanatory:

Each agency may release public information regarding its own portion of the project as desired, and insofar as the participation of the other agency is concerned, after suitable coordination.

V. Conclusion

From the foregoing statistics, data, and discussions, it is seen that NASA's appropriations, while still comparatively large, are substantially diminished from the level of funding made available during the phases of manned space flights leading to Apollo 13. It is seen, further, that greater emphasis will be, and already has been to some extent, placed upon international cooperation in aeronautical and space research as a source of funding to fill some of the domestic gap left by diminished appropriations. Also discussed was the very impressive record of international cooperation pursued by NASA in the past decade, albeit somewhat modest in the shadow of Mercury, Gemini, and Apollo programs. A good deal of ingenuity has been exercised by NASA, both in perceiving the advantages of melding significant portions of its domestic programs with foreign expertise and potential, and in using the cooperative approach for the best interests of all parties involved.

In terms of the general guidelines originally established by NASA for cooperative projects, it is certainly safe to conclude that the approach has stimulated a good deal of interest in many countries which, left to their own initiative in the area, would have shown no scientific, management, or economic inclination in pursuing the benefits of space research. The cooperative approach also has established an appreciable confidence, both in NASA's technological capability as well as the sincerity of its motivations in promoting international space research cooperation. The experience, through on-the-job-training and NASA-supported resident research associations and international fellowships, has provided a substantial space sciences base in many countries; certainly to the point where there is significant potential for foreign contribution to the art of space research in addition to those countries already possessing expertise and superior space science capabilities.

NASA's international programs not only have provided direct access to foreign areas for measurements of global or special geophysical significance, it also has assisted substantially in providing host countries with competence to conduct their own accurate measurements and provide meaningful data to the world's scientific community. Various of the ground support projects have enhanced substantially the quality of many satellite experiments through the global network of NASA's tracking and
data acquisition stations, many of which are now totally manned by indigenous personnel.

The true cost-sharing, or "no exchange of funds," concept has been applied uniformly, equitably, and intelligently. Consequently, the Memoranda of Understanding have been the bases of truly cooperative ventures and have contributed significantly to the self-sufficiency of several countries in the discipline of space sciences research. Under present circumstances, however, an inflexible application of this concept could well be destructive of both the good will among members of the space sciences community, and perhaps even the international cooperative projects program of NASA, itself. The risk of loss arising from a "failure of best efforts" by one of the parties to an agreement is too great for the other party which, by terms of the agreement, must incur the initial expenditures. This risk is particularly acute in times of nominal funds available for scientific research.

It is quite likely that the continuing and protracted success of international space research cooperation will depend upon the facility with which the legal profession can develop instruments that (1) bind the parties to an agreement somewhat tighter in terms of their respective project responsibilities as well as liabilities to third parties, (2) de-emphasize reliance upon "best efforts" alone to execute responsibilities, and (3) still avoid the necessity of having protracted intergovernmental negotiation, as opposed to interagency accord. It is apparent that events are going to require Memoranda of Understanding to assume a stronger aura of binding contractual relationships, perhaps involving standards and sanctions formulated and applied by an international public entity which would encompass cooperation in major space exploration and research efforts. Further, such an organization may be the principal conclusion reached through dealing with the problems deriving from the international cooperation NASA has invited in development of its space station and space shuttle programs.

Cooperative projects to date certainly have expanded, if not enhanced, ties and contacts among the international science community. This should in no way imply, as has often been the consequence of NASA's dramatic successes, that international relations can be improved by bringing scientists from intensely diverse political structures and/or ideologies together in a common project. Space exploration often has the mystical appearance of transcending all nationalistic and parochial interests, but international scientific cooperation in this area is not the coveted panacea. At best, it might help. If not handled carefully, responsively and sensitively at all times, international cooperative projects easily could carry the seeds of its own destruction with all the normal attending embitterment among scient-

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28 Those countries in which tracking and data acquisition stations (including electronic and optional stations) have been, or presently are located include Argentina, Australia, Brazil, Canada, Chile, Ecuador, Ethiopia, West Germany, Greece, India, Iran, Japan, Madagascar, Mexico, Netherlands, Nigeria, Peru, South Africa, Spain, Tanzania and the United Kingdom (Antigua, Ascension Islands, Bermuda, Canton Island and Grand Bahama).
Numerous provisions of the presently-structured Memorandum of Understanding which emphasize the non-contractual facets tend to create an instrument susceptible to facile abuse. "Good intentions" normally remain good only under favorable circumstances, but difficult times and narrow interests usually distort the original definition of those good intentions.

It appears, therefore, that NASA has at least three choices in pursuing its program of international cooperation: (1) continue with the same guidelines and objectives, and risk the probability that the relationships created by presently-structured Memoranda will work against the evolving needs and best interests of both parties; (2) restructure Memoranda to reflect a more contractually-binding nature and hope the cumbersome intergovernmental negotiations can be skirted; and (3) restructure the entire international program so that NASA becomes a partner in an effective public, or quasi-public, international organization designed to promote the best interest of all parties in future exploration and research ventures into space.