OPINION OF ADVOCATE GENERAL SIR GORDON SLYNN
delivered on 25 June 1986

My Lords,

The two free universities of Brussels concluded a leasing contract with Control Data Belgium NV SA (a wholly-owned subsidiary of Control Data Corporation, an American company which, with its affiliates, manufactures computers) concerning the acquisition of two computers of the Cyber 170-720 and Cyber 170-750 types, both manufactured in the USA. In order to import the computers free of duty Control Data Belgium NV SA, acting in the name of the universities, submitted an appropriate application dated 6 August 1980 to the Belgian customs authorities. The Belgian authorities transmitted the application to the Commission, which decided that those computers could not be imported free of Common Customs Tariff duties by its Decision 81/692 of 10 August 1981 (Official Journal 1981, L 252, p. 36). Control Data Belgium NV SA brought an action under Article 173 of the EEC Treaty for the annulment of that decision: Case 294/81 *Control Data* v *Commission* [1983] ECR 911.

In its decision in that case, the Court held that the Commission took an overrestrictive view of what could constitute an 'instrument' (paragraphs 20 to 23). It held that it had not been established that the Commission had applied a classification criterion based upon the difference between hardware and software, even though such difference might be a valid criterion (paragraph 26). It rejected the Commission's argument that the use of the products at issue prevented them from qualifying as 'scientific' (paragraphs 27 to 30). It concluded its decision as follows (paragraphs 31 and 32): 'It must therefore be concluded that neither the statement of the reasons on which the decision at issue is based nor the Commisson's arguments before the Court have made it possible for the Court to find that when the Commission adopted the decision it applied clear criteria which were in accordance with the Community regulations and that in doing so it had sufficient regard for the particular objective characteristics of the two computers in question. For that reason the decision adopted by the Commission should be declared void and the matter should be referred back to the Commission for reconsideration.' The Court did not give any ruling on the scientific status of the computers in question.

Pursuant to the Court's judgment the Commission adopted a fresh decision on 12 October 1983, 83/521 (Official Journal 1983, L 293, p. 24) which again decided that the computers in question could not be imported free of Common Customs Tariff duties.

By an application dated 9 January 1984, and lodged in due time, Control Data Belgium Inc., the successor of Control Data Belgium NV SA, sought the annulment of Decision

83/521. In its written pleadings the applicant gave details of other Cyber computers installed in Europe prior to December 1982. It was asked at the hearing in January to provide details of other sites where computers were installed since December 1982. That information, a copy being supplied to the Commission, was not received by the Court until 14 April 1986, a fact which has delayed the delivering of the Opinion in this case. The Commission were asked to comment on the information. By letter received at the Court on 29 April 1986 the Commission objected to this being accepted though it made certain comments as to why, even if accepted, the list should not be taken into account on its merits. I consider that the list should be accepted, but in the end, having considered both sides' comments, I do not think that the new information affects the issues arising in the case.

The case arises in the framework of Council Regulation 1798/75 of 10 July 1975 (Official Journal 1975, L 184, p. 1) as amended by Council Regulation 1027/79 of 8 May 1979 (Official Journal 1979, L 134, p. 1) and of Commission Regulation 2784/79 of 12 December 1979 (Official Journal 1979, L 318, p. 32). With effect from 1 July 1984 Council Regulation 1798/75 was repealed and in substance re-enacted in Council Regulation 918/83 of 28 March 1983 (Official Journal 1983, L 105, p. 1) and Commission Regulation 2784/79 was repealed and substantially re-enacted by Commission Regulation 2290/83 (Official Journal 1983, L 220, p. 20), but since the contested decision was adopted on 12 October 1983, i.e. before the new regulations entered into force, it comes under the earlier regulations, i.e. Council Regulation 1798/75 as amended and Commission Regulation 2784/79. Moreover, Council Regulation 1798/75 must be considered in its version as amended by Council Regulation 1027/79 (an amendment which involved in particular the complete replacement of Article 3) because that regulation entered into force on 1 January 1980 and was therefore applicable both on the date of adoption of the contested decision (12 October 1983) and on the date of the original application for admission free of duty (6 August 1980).

The applicant requests the Court to annul Commission Decision 83/521 on three alternative grounds

(1) it is time-barred,

(2) the Commission's examination of the objective technical characteristics of the computers concerned was inadequate, and

(3) the Commission's review of the general uses in the Community of instruments of the type of those in question was erroneous.

Time bar

The applicant relies on Article 7 (7) of Commission Regulation 2784/79 which provides: 'If, on the expiry of a period of six months from the date on which the application was received by the Commission, the latter has not adopted any decision under paragraph 6, the instrument or apparatus in question shall be deemed to fulfil the conditions required for duty-free admission.' The applicant points out that Commission Decision 83/521, being adopted on 12 October 1983, was adopted nearly seven months after the Court's judgment in the first Control Data case (17 March 1983). The applicant therefore

submits that the decision should be annulled in that the Commission failed to issue it within six months of the date of the aforesaid judgment.

I do not consider that the time-limit in Article 7 (7) governs the situation where a decision has been annulled by the Court. A fresh decision must be taken within a reasonable time. I agree with the Commission that in all the circumstances of the present case (careful consideration of the reasons for the Court's judgment, extensive consultation with experts, weighing of consequences with particular care, comparison with the six-month period indicated in Article 7 (7) of Regulation 1784/79) the time taken to adopt the fresh decision was reasonable. The Commission's decision in my view was not time-barred.

Objective technical characteristics

In relation to the second and third grounds it is to be noted that in paragraph 14 of the judgment in Case 216/82 *Universität Hamburg* v *Hauptzollamt Hamburg-Kehrwieder* [1983] ECR 2771, at p. 2789, the Court ruled that it cannot find fault with the contents of a decision which the Commission has adopted in conformity with the opinion of the Committee on Duty-Free Arrangements (which, according to the recitals in the decision and the statements of counsel for the Commission at the hearing, is the case here), save in the event of manifest error of fact or law or misuse of power. The Court may not substitute its own view for that of the Commission as to the merits of the decision. I read the foregoing judgment as indicating that the Court should not go into the wealth of technical detail submitted to it in the present case any further than is necessary to establish whether or not there has been a manifest error of fact or law or a misuse of powers.

Article 3 (1) of Council Regulation 1798/75, as replaced by Council Regulation 1027/79, provides that 'scientific instruments and apparatus' may be admitted free of Common Customs Tariff duties under three conditions:

(i) they must be imported exclusively for non-commercial purposes;

(ii) they must be intended for:

(a) either public establishments principally engaged in education or scientific research, including those departments of public establishments which are principally engaged in education or scientific research, or

(b) private establishments principally engaged in education or scientific research and authorized by the competent authorities of the Member States to receive such articles duty free; and

(iii) instruments or apparatus of equivalent scientific value must not be being manufactured in the Community.

Counting the requirement of qualifying as 'scientific instruments and apparatus' as a separate one, there are thus four requirements to be fulfilled in order for goods to qualify for duty-free treatment. This case concerns only the first one: whether the instrument or apparatus is 'scientific' within the meaning of Regulation 1798/75 as amended.

Article 3 (3) of that regulation provides that for the purposes of that Article, 'a scientific instrument or apparatus' shall mean any instrument or apparatus which, by reason of its *objective technical characteristics* and the results which it makes it possible to obtain is mainly or exclusively suited to scientific activities. The phrase in italics is further defined in Article 5 (1) of Commission Regulation 2784/79. The first subparagraph of Article 5 (1) provides that the 'objective technical characteristics' of a scientific instrument or apparatus shall be understood to mean those characteristics resulting from the construction of that instrument or apparatus or from adjustments to a standard instrument or apparatus which make it possible to obtain high-level performances above those normally required for industrial or commercial use.

The contested decision recites (third recital) that the Commission on several occasions convened a group of experts consisting of representatives of all Member States within the framework of the Committee on Duty-Free Arrangements pursuant to Article 7 (5) of Commission Regulation 2784/79, and (fourth recital) that the group paid close attention to those objective technical characteristics alleged to show that the computers in question were scientific apparatus. Those characteristics are listed and dealt with seriatim and the conclusion is reached that the computers in question were not scientific instruments or apparatus.

The applicant alleges that the examination of the objective technical characteristics of the products in question evinced in the fourth, fifth and sixth recitals to the decision was inadequate and submits that the decision should be annulled on that ground alone.

The applicant contends first that the Commission did not make a fresh reappraisal following the annulment of its earlier decision by the judgment in Case 294/81, but merely confined itself to supplying fuller reasons for the same conclusion. I do not accept that contention. There is no evidence to support it, unless it be an inference drawn from the fact that the conclusion is the same in both decisions. The third recital to Decision 83/521 and the Commission's pleadings and statements in answer to questions at the hearing to my mind make it plain that the Commission did make a fresh appraisal as it was required to do by Article 176 of the EEC Treaty.

The applicant contends secondly that the Commission operates a general policy, which it applied in Decision 83/521, of refusing duty-free treatment on scientific grounds to all computers whatsoever. The Commission denies this, citing the case of two computers to which it has allowed duty-free entry on scientific grounds. Those computers were, it appears, smaller than those at issue in this case and of a different kind, being designed for work on what is called 'artificial intelligence'. Although it is clear that previously the Commission did take the view that computers could not be scientific instruments, it seems to me that that position has changed and it does not seem to me that the applicant has made out its contention in this case.

Thirdly, the applicant argues that the Commission was wrong in singling out for

specific examination the six characteristics listed in the fourth recital to Decision 83/521. That recital reads as follows:

'Whereas in the course of its examination the group (i. e. the group of experts referred to in Article 7 (5) of Regulation 2784/79) paid close attention to those objective technical characteristics which, according to the user, show that the computers in question are scientific apparatus; whereas these characteristics can be described as follows:

(i) word-orientated hardware, the smallest addressable unit being a word of 60 bits,

(ii) floating point arithmetic,

(iii) simple and double precision of 60 and 120 bits respectively,

(iv) individual functional units of the Cyber 170-750 enabling the system to perform complex operations at high speed,

(v) instruction sets adapted to scientific languages,

(vi) particular effectiveness of distributed (multi-processor) architecture.'

The Commission's answer is that the characteristics listed were taken from the applicant's own documentation where they were presented as being the distinctive features of the computers in question. The Commission is bound by the legislation to look at the 'objective technical characteristics' of the object in question, and to use those characteristics singled out by the manufacturer himself seems to me a reasonable way of carrying out that duty. I would accordingly reject the applicant's suggestion on this point, and accept that this was a legitimate choice of characteristics to concentrate on.

I also accept the statement made by the Commission at the hearing that it not only went into the technical details after the first Court decision in depth but that it also considered the question on an overall basis.

The applicant's next complaint — and really the nub of the case — is that the Commission wrongly assessed these characteristics both individually and taken together in their combined effect.

The assessment is contained in the fifth and the beginning of the sixth recital to Decision 83/521, which read as follows:

'Whereas, with respect to these characteristics, it appears that the first two are in no way specific to the computers in question but are found in all advanced computers, the floating point arithmetic technology being found even in pocket calculators. As to the third characteristic, the maximum precision values obtainable with these imported computers can, in those extremely rare cases where such precision may be necessary, also be achieved by computers with a small number of bits per word (e. g. 32 and 64) by means of appropriate software. As to the fourth characteristic, neither the use of individual functional units nor the performance of complex operations at high speed can be considered as being requirements specific only to scientific computation. Furthermore, comparable performance to both the Cyber systems under consideration is obtainable from other competitive computers, with the Cyber 170-720 fitting into the lower speed category, while the 750 belongs in the

middle-high speed category. With respect to the fifth characteristic, the manufacturer has provided that the instruction sets can also be used with languages particularly suited to commercial purposes, such as Cobol, Very/Update, Form, CRM, DAL; etc. As to the sixth characteristic, it should be noted that multi-processor computer architectures are also provided by other suppliers of high-performance systems, hence it is not unique to the Cyber computers;

Whereas, as it appears from the observations made, the imported instruments do not have the required objective characteristics making them specifically suited to scientific research . . . '.

Five specific reasons are given why the examination of the objective technical characteristics of the products should be regarded as inadequate:

(1) there is manifest error about the very long words with which the computers are equipped to deal;

(2) incorrect criteria were used in assessing the significance of the high precision to which the computers concerned can work;

(3) in assessing the significance of the individual functional units of the larger of the two computers, the Commission is mistaken about the scientific value of the computer's having separate functional units and it brings in an irrelevant factor when it considers whether comparable performance can be obtained from other computers;

(4) in dealing with the computers' instruction sets adapted to scientific languages, the Commission uses the wrong criterion when it considers that non-scientific languages *can* be used on the computers in question; the relevant criterion is whether scientific languages are *primarily* used on them;

(5) in considering the architecture of the computers the Commission addressed an irrelevant issue (multi-processors) but failed to address the relevant one (peripheral processors which insulate the central processor from the outside world), and it used the wrong criterion inasmuch as scientific status does not depend on whether a particular feature is unique.

The Commission joins issue on all these points.

(1) As to word-oriented hardware and precision, the Commission alleges that the applicant has misinterpreted the decision, although it does admit that the 60-bit word length, giving 14-decimal-digit accuracy from single length operation, is a distinctive feature of the Cyber computers and clearly shows that they were designed for high-precision numerical computation. On the other hand, it considers that the orientation to long words, coupled with the non-orientation to characters, results in serious deficiencies for the scientific usage of the computers in question.

(2) Floating point arithmetic, it is repeated, is found in all advanced computers; the floating point characteristics of the computers in question involve certain disadvantages for scientific use.

(3) On the question of individual functional units, the Commission contends that the decision at issue makes a general point that individual functional units cannot be considered as a requirement specific to scientific computation because other computer systems have individual functional units of various kinds which enable them to perform complex oper-

ations at high speed, though not necessarily for scientific computation.

(4) As to instruction sets adapted to scientific languages, the Commission concedes that the computers in question are better at handling scientific languages than commercial ones; but it denies the applicant's assertion that 'its equipment was especially efficient in handling the Fortran scientific language'. The Commission adduces figures and arguments which lead it to the conclusion that though the Cyber systems are efficient in the execution of Fortran programmes, they are not highly efficient when compared with other high-performance general-purpose computer systems and it gives certain ICL and IBM computers as examples.

(5) As regards the architecture of the computers in question, the Commission concedes that the basic physical construction of the computers concerned is distinctive and unusual and that the construction is unlike that of nearly all other computers; but it denies that this peculiar construction makes it any better suited to scientific usage than to commercial usage, and even alleges that it may constitute a disadvantage for certain kinds of scientific computing.

(6) Referring to the seventh recital of the contested decision, the Commission makes a point which was not raised in the application, namely that it is important to distinguish between computer hardware and software. It submits that it is the software and, in particular, the application software, which enables a computer to be used for scientific activities. In the present case it is only the hardware which has been submitted for duty-free entry, and that hardware is, in the Commission's submission, perfectly appropriate, with the right software, for commercial and industrial activities. In the Commission's view, the applications (scientific or otherwise) depend on the software and various applications may be provided on the same invariable hardware by virtue of the endless flexibility of the software. In my opinion, whether or not this argument is well founded, it is a consideration which did not figure in the contested decision and therefore cannot now be used to justify it.

(7) In regard to the seventh and eighth recitals of the contested decision, the Commission insists on admissions made in Control Data Corporation's documentation vaunting the 'multiple abilities' of the computers concerned. The Commission resists the applicant's attempt to dismiss this as mere 'sales literature'.

In my opinion, this is not a factor which goes to '*objective* technical characteristics' with which the present discussion is concerned and can be left aside.

The reply is drafted in broad terms; the detailed technical response to the defence is contained in an expert's report annexed thereto. The expert report deals with various points of technical detail. It also contains the statement that 'Control Data computers were designed for the scientific market, that is the market which requires high-speed numerical calculations done with great precision'. The expert concedes that many of the assertions made in the Commission's defence are obviously correct but expresses the view that the Commission's conclusion, that a Cyber

170-750 is not 'mainly or exclusively suited' to scientific activities, seems quite astonishing.

In the rejoinder, the Commission recognizes that the computers in question have the particular hardware characteristic of being unable to handle units of less than 60 bits, but it avers that this can be overcome by appropriate software.

The first of the objective technical characteristics listed in the fourth recital to the decision — 'word-orientated hardware, the smallest addressable unit being a word of 60 bits' — is, taken on its own, clearly an unusual feature setting the computers in question apart from most others. I understand that a 'word' in this context means the amount of information that a computer transfers into and out of its memory at a time. The length of a word varies from one model of computer to another. Most computers use 8, 16 or 32-bit words. Computers using 60-bit words are unusual. These 60-bit words are the smallest that the computers in question in this case can use or 'address'.

The significance of this is that it enables the computers in question to do extremely large calculations to a high degree of precision much faster than most computers. Whilst the applicant admits that computers built to use shorter words can be made, with appropriate software, to carry out extremely large calculations, it points out that it would take them far longer to do so than the instant computers. The Commission does not deny this but argues that high speed in carrying out large calculations is merely a matter of comfort for the user.

I do not accept the Commission's argument. In my view the applicant presented convincing reasons why high speed in carrying out large calculations is not merely a matter of comfort. The applicant's expert, Dr Jackson, gave the example of work done by him concerning the properties of the element turbium, by using a mathematical model on a computer. He described his research as a 'numerical experiment' and said: 'For me the computer was my scientific instrument'.

In such circumstances extremely large numbers are involved and the differences between those numbers must be measured with the utmost precision in order for the experiment to yield a worthwhile result. The applicant argues that the computers in question here are designed specifically to meet this kind of requirement. Among other of their features, the unusually long words which they use enables them to carry out massive calculations at the extreme limits of computer capacity and at the extreme limits of human knowledge involved in the kind of scientific research of which Dr Jackson gave an example. The Commission has no real answer to the applicant's assertion that speed, and the ability to perform sophisticated, lengthy calculations very quickly can decide whether a given piece of research is done or not. This is therefore not a mere matter of comfort. On the contrary, it is in my view a material point which required serious consideration by the

Commission in reaching its decision, a consideration which it has not been shown to have undertaken.

In the fifth recital to Decision 83/521 the Commission dealt with this first characteristic not on its own but along with the second characteristic, floating point arithmetic. It dealt with them in the following terms:

'Whereas, with respect to these characteristics, it appears that the first two are in no way specific to the computers in question but are found in all advanced computers, the floating point arithmetic technology being found even in pocket calculators.'

Both sides accept that nowadays floating point arithmetic is widespread, is not confined to computers and is found even in commonplace calculators. I do not consider that any challenge to the Commission's view on this characteristic taken in isolation can stand.

On the other hand, it seems that the Commission now accepts that the 60-bit word length is not found in all advanced computers: this word length is specific to the computers in question.

At the hearing the Commission said:

'The Commission initially understood the applicant to be seeking to show that the word-oriented structure of the computer and the 60-bit word length were quite exceptional features in a large computer, and they were sufficient in themselves to confer a scientific character on the machine. In the recitals to its decision, the Commission replied to this argument and pointed out that almost all recent computers are word-oriented and that the precision of 60 bits referred to is achieved by many commercial computers, notably those of IBM.

It emerged in the course of the proceedings that the applicant wanted to give particular prominence to the fact that 60 bits was the smallest addressable unit, and that much greater word lengths could be achieved running to double this and more. The Commission immediately acknowledged that this was a special feature of the Cyber. That fact is no longer in dispute. But the Commission pointed out that with suitable software, the disadvantages this structure entails for many applicants can, to a great extent, be overcome.'

The Commission therefore admits — and I think rightly — that there has been a misunderstanding. It failed to appreciate the point being made by the applicants about word length and hence failed to deal with it in the contested decision. The Commission thus proceeded in the recital dealing with this matter on an erroneous basis and failed to take account of a relevant factor in reaching its decision. The Commission seeks to avoid the effect of this error by asserting *ex post facto* that suitable software can to a great extent achieve a similar result. It does not seem to me to have established that and in any event the Court cannot be satisfied that on this basis the result would have been the same. The erroneous approach was not therefore an immaterial error.

The Court has already made it plain that the test to be adopted in deciding whether an instrument or apparatus is 'mainly or exclusively suited' to scientific activities requires only that the instrument or apparatus is primarily suitable for such activity. Apparatus does not cease to be

scientific apparatus for this purpose merely because it is, or may also be, suitable for other purposes such as industrial or commercial uses: Case 72/77 *Universiteitskliniek Utrecht* v *Inspecteur der Invoerrechten en Accijnzen* [1978] ECR 189, at pp. 198 and 199; Case 234/83 *Gesamthochschule Duisburg* v *Hauptzollamt München-Mitte* [1985] ECR 327.

Although the Commission accepted at the hearing that the fact that apparatus can be used for commercial purposes, and in particular industrial research, does not necessarily prevent that apparatus from being scientific apparatus, it does not seem to me that the Commission has approached the question in the right way. The fifth recital merely says that the first characteristic (the smallest addressable unit being a word of 60 bits) is not specific to these computers. At the hearing it rejected the applicant's argument that this technical characteristic is an advantage only or at least mainly in scientific activities, on the basis that complex numerical functions have to be performed in many industries, such as the motor or aerospace industries. This, however, is not itself sufficient. The fact that they may be capable of use in other industries does not preclude their being mainly suitable for scientific activity. The Commission appears to have departed from this view and to have considered that an apparatus cannot be suitable for scientific purposes if it is capable of use for both research and industrial uses. Once it is accepted, as in my view it should be accepted, that scientific activity may be carried out by scientists employed in industrial undertakings, the nature of the use by those scientists of the computer is relevant for the purposes of deciding whether the apparatus is mainly suited to scientific activities. The applicant has produced, to my mind, strong *prima facie* evidence to show that the unusual word length is an objective technical characteristic making these computers mainly suitable to such scientific activity. The terms of the fifth recital and the Commission's arguments in the case seem to me to show that in relation to the unusual word length the Commission failed to investigate the right question. It did not ask whether these computers were mainly suitable, on this basis, for scientific activity even though they could be used in industrial undertakings.

The Court has also made it clear that the concept of the scientific nature of the instruments or apparatus in question is not to be interpreted restrictively: *Gesamthochschule Duisburg*, paragraphs 23 to 26. This follows from the purpose of Regulation 1798/75 as evinced in particular in the first and second recitals in the preamble thereto. The regulation was intended to favour, not hamper, the implementation of the 1952 Florence Agreement drawn up under the auspices of Unesco on the importation of educational, scientific and cultural materials. The regulation also recites that:

'Whereas, in order to facilitate the free exchange of ideas as well as the exercise of cultural activities and scientific research within the Community, it is necessary to

allow, by all possible means, the admission free of Common Customs Tariff duties of educational, scientific and cultural materials.'

In my opinion, for the Commission to consider the issue on the basis that merely because a computer with a long word length is capable of use in certain industrial concerns it does not qualify for duty-free treatment, is to adopt too restrictive an approach.

Once it is admitted in the defence that these computers were clearly designed for high-precision numerical calculations and 'that the Cyber computer is basically adapted to carry out scientific calculations rather than administrative tasks' the approach of the Commission in the actual decision seems to me to be even more open to doubt. It has been suggested that there are some disadvantages for scientists in these particular computers, but that does not seem to me to prevent their being mainly suited to scientific activity, particularly as the disadvantages relied on seem to be relatively minor. The Commission's approach in the decision seems to me to be further undermined by the argument addressed to the Court that instruments or apparatus for use in medical research can very rarely be accepted as falling within the exemption on the basis that the link between pure research and practical application is so close. This seems to me to be taking far too restrictive a view of the exemption made possible by the regulation. On this aspect of the case the argument that other such computers may be better for scientific research does not seem to me to matter either. The Commission is not concerned with making an assessment of relative efficiency but of deciding whether the computer is mainly suited for scientific activity. It has been suggested that these computers are not especially efficient for scientific purposes. That may or may not be true but it is not the approach. The Commission should confine itself to the question as to whether these computers are mainly suited for scientific activity.

Moreover, the assessment of the objective characteristics of an instrument is not to be governed by the particular purposes for which the importer intends to use or actually does use it, even if that may be some evidence as to its objective characteristics. The fact — insisted on by the Commission — that for a period the two universities did a part of their administrative work on the computer seems to me of little, if any, weight. The percentage of the machine's use attributable to that administrative work is in any event small.

To give effect to the plain intention of the regulation, by not giving a restrictive meaning to the phrase 'scientific instruments or apparatus', does not open the floodgates to duty-free imports as the Commission seems to fear. Even if an instrument can be a scientific instrument if it is used for research by scientists in an industrial undertaking (as in my view it may), that undertaking is not entitled to relief from customs duty automatically. To qualify it must also show that it is a private establishment (a) principally engaged in education or scientific research, and (b) that it is 'authorized by the competent authorities of the Member States to receive such articles duty free'.

In my opinion, the decision should accordingly be annulled on the basis (a) that the applicant's real case in relation to the 60-bit word length was not considered by the Commission, (b) that the Commission did not properly consider whether, even though the computers could be used in industrial undertakings, they were still mainly suitable, because of the 60-bit word length, for scientific activity and (c) the Commission adopted too restrictive an approach as to what is capable of constituting a scientific instrument or apparatus for the purposes of the regulation.

The applicant also criticizes the Commission's treatment of the other characteristics.

The third characteristic is described as 'simple and double precision of 60 and 120 bits respectively'. This is dealt with in the fifth recital as follows:

'As to the third characteristic, the maximum precision values obtainable with these imported computers can, in those extremely rare cases where such precision may be necessary, also be achieved by computers with a small number of bits per word (e. g. 32 and 64) by means of appropriate software.'

This is, it seems, correct as far as it goes but it omits to mention that it might take computers with smaller word capacity much longer to achieve the same result. The 'extremely rare cases' where unusually high precision is necessary are precisely — according to the evidence before the Court — the case of scientific research by means of a computer. The Court was told that the largest number which can be recorded in any IBM computer on the market today is roughly 10 to the power of 45, whereas the largest number which can be recorded on a Cyber computer is 10 to the power of 322. The Commission's failure to appreciate the significance of the 60-bit word length seems very likely to have led it to pay so little attention to the importance of speed or the vast numbers available for use with the instant computers. The applicant's criticism of the Commission's view on this third characteristic seems to me to be a facet of the criticism directed to the view taken on the 60-bit word length.

The fourth characteristic is listed in the decision as 'individual functional units of the Cyber 170-750 enabling the system to perform complex operations at high speed'. This characteristic concerns only the larger of the two machines imported in the present case. It is dealt with in the following terms in the fifth recital:

'As to the fourth characteristic, neither the use of individual functional units nor the performance of complex operations at high speed can be considered as being requirements specific only to scientific computation. Furthermore, comparable performance to both the Cyber systems under consideration is obtainable from other competitive computers, with the Cyber 170-720 fitting into the lower speed category, while the 750 belongs in the middle-high speed category.'

The term 'functional units' appears to be capable of different meanings. If it is taken to refer to peripheral processors (equipment outside the central processor) the applicant concedes the correctness of the Commission's statement, saying, 'it is not suggested that having peripheral processors

renders a computer scientific in orientation'. There is disagreement between the parties only if 'functional units' is taken to refer to subdivisions of the central processor itself, i.e. into units which each perform a single operation such as addition or division. In that case, the applicant asserts that the fact that separate sections of the central processor specialize in different mathematical steps does indeed enhance the facility of the computers in question in performing the computational needs of scientists. The applicant concedes that it is true that all advanced computers (whether oriented to general business applications or to science) can do complex operations at high speed, but argues that the question (which the Commission fails to address) is whether the computers at issue are especially good at running complex scientific computations at high speed. In my view there is force in this contention. Although it may be right that the use of individual functional units is not limited to computers needed for scientific activities and that the performance of complex operations at high speed is not limited to computers required for scientific activities, the essential question as to whether the instant computers, because of the individual functional units and the performance of complex operations at high speed are mainly (rather than 'only' or 'exclusively') suited to scientific activities, is not addressed by the Commission in this comment. That is in my view an error of approach and a failure to ask the right question.

The second sentence of the comment in the fifth recital as to the fourth characteristic seems to go beyond a consideration of 'individual functional units' dealt with in the first sentence. I cannot see that any error of law is shown in the conclusion. On the other hand, it does not resolve the question as to whether the instant computers are scientific instruments.

The fifth characteristic is described as 'instruction sets adapted to scientific languages'. This is dealt with in the fifth recital as follows:

'With respect to the fifth characteristic, the manufacturer has provided that the instruction sets can also be used with languages particularly suited to commercial purposes, such as Cobol, Very/Update, Form, CRM, DAL, etc.'

I understand that an 'instruction set' is a listing of all the instructions a computer can execute. It is common ground that the instruction sets for the computers at issue work well with Fortran, which I understand is a high-level programming language for scientific and mathematical applications. In its pleadings the applicant asserted that the Commission used the wrong criterion here and that its equipment was especially efficient in handling Fortran. The Commission denied the latter assertion and contended that, although the machines in question were efficient in the execution of Fortran programs, they were not highly efficient when compared with other high-performance, general-purpose computer systems. There ensued a dispute between the parties as to the method by which the comparison was carried out. However, none of this appears in the decision, and the question for the Court is whether the

Commission has erred in law in the way it treated the characteristic as described by the applicants.

The fact that the instant computers can be used with Cobol and other program languages apt for commercial use is a relevant consideration when considering whether the computers are 'mainly or exclusively' suited to scientific activities — just as it would be if they could be only used with Fortran which is not the case here. I am not satisfied that there is any error either in the Commission's approach in taking this matter into account or in its conclusion.

The sixth and last characteristic listed in the decision is the 'particular effectiveness of distributed (multi-processor) architecture'. I understand that 'architecture' in this context means the design of a computer system to meet certain objectives, and that a multiprocessor is a computer system which provides each user with his own central processing unit and memory. This characteristic is dealt with in the following terms in the fifth recital:

'As to the sixth characteristic, it should be noted that multi-processor computer architectures are also provided by other suppliers of high-performance systems, hence it is not unique to the Cyber computers.'

A given characteristic does not have to be unique to a computer before it can be a scientific instrument but it is relevant to consider whether that characteristic makes it possible 'to obtain high-level performances above those normally required for industrial or commercial use' within the meaning of Article 5 (1) of Regulation 2784/79.

It appears to be common ground between the parties that the architecture of the computers in question is unusual. The Commission admits that the peculiarity is that there is no continuous access to the central processing unit from outside once it has been set in motion and that this method of construction allows the central processing unit to concentrate on performing complex, numerical functions. But the Commission asserts that this powerful 'number-crunching' capacity does not necessarily demonstrate the scientific character of the machine. I accept the Commission's contention: it is common ground between the parties that the architecture of the machines in question is outstandingly suitable for complex numerical operations, but operations of that kind have to be performed in industrial or commercial activities as well as in scientific ones. Examples given are motor and aircraft design, animated cartoons in the film industry and weather-forecasting. On the other hand, it is quite conceivable that this type of architecture would be inappropriate for certain kinds of scientific research where constant dialogue with the central processing unit is desirable, e.g. biological research where data may change during the course of an experiment (as for example in Case 6/84 *Nicolet Instruments* v *Hauptzollamt Frankfurt/Main Flughafen* [1985] ECR 759.

Architecture adapted to number-crunching does not *of itself* establish that a computer is suited exclusively or even mainly to scientific activities for the purposes of Article 3 (3) of Regulation 1798/75. I do not consider that the applicant has shown any ground for annulling the decision on the basis of the Commission's treatment of the sixth specific characteristic listed therein.

On the other hand, a computer with an architecture such as that in question may constitute a scientific instrument or apparatus if the global effect of all its features is to suit it mainly or exclusively to scientific activities. Dr Jackson, the applicant's expert, has provided an example of the kind of scientific research where the computer itself is the instrument of research. If the decision is annulled, as I consider it should be for the reasons given, the Commission will have to revise the global assessment which it reached in that decision so as to take account of the additional element of the unusual word length. This factor is not to be taken in isolation, and the global assessment may well be altered by interaction of that factor with the other factors listed. In particular, the unusual architecture (sixth characteristic) and the high degree of precision (third characteristic) may assume a different significance when reassessed along with the unusual word length used in the computers (first characteristic). Similarly, if it is right that floating point arithmetic apparently allows a greater number of digits after the decimal point, and therefore greater accuracy, this must be seen alongside the effect of the 60-bit word and the high degree of precision claimed for these machines.

General uses in the Community

The second subparagraph of Article 5 (1) of Regulation 2784/79 provides: 'Where it is not possible to establish clearly on the basis of its objective technical characteristics whether an instrument or apparatus is to be regarded as a scientific instrument or apparatus, reference shall be made to the general uses in the Community of instruments or apparatus of the type for which duty-free admission is requested. If this examination shows that the instrument or apparatus in question is used mainly for scientific purposes, it shall be deemed to be of a scientific nature.'

The Commission applied this test *ad abundantiam* in the sixth to the twelfth recitals to the contested decision, even though the first test was sufficient to refuse duty-free entry into the Community. It told the Court that it did so because it knew that its conclusion on the first test was likely to be challenged. The third ground on which the applicant claims annulment of the decision is that the Commission's review of the general uses of such products in the Community is erroneous.

The applicant mentions two reasons in particular why the review was erroneous. First, the Commission ignored the actual uses of similar models listed in a chart which it supplied to the Commission. Secondly, the applicant considers that the relevant use is research and that the Commission is wrong to distinguish between research carried on in a university and research carried on by a profit-oriented company. The applicant also avers that the sales literature of Control Data Corporation is an unreliable guide to the actual uses being made of equipment.

The Commission disagrees with the applicant's assessment of the use of computers of the same model installed

within the Community. It deduces from the applicant's own table that, out of 13 Cyber 750s installed in the Community, 5 are being used for scientific purposes and, out of 33 Cyber 720s, 14 are being so used. The Commission therefore concludes that the applicant's own table supports the Commission's assessment at the time of the decision, that the Cyber computers were not mainly used in the Community for scientific purposes. The Commission answers the applicant's first point by saying that it takes the expression 'scientific purposes' to mean the purposes of the 'acquisition of knowledge for the common good'. The Commission's position is not, as suggested, that use in a profit-making environment necessarily rules out scientific status for an instrument; but it does mean that the use by an industrial or commercial firm, whose principal objective is the making of profits rather than the acquisition of knowledge for the community at large, has to be examined particularly carefully before it can be admitted as being 'scientific'. As stated above, the Commission resists the applicant's attempts to dismiss statements in its documentation as mere 'sales literature'.

The applicant replies that if 'scientific purposes' means for the 'acquisition of knowledge for the common good' there is no possibility that sophisticated equipment used by a high-technology company in the course of its business could be regarded as 'scientific'. In the applicant's submission a commonsense interpretation of the term 'use for scientific purposes' would imply 'use by a scientist', and such a scientist might be engaged in research for the common good or might be engaged in research to make profits.

After reflection on the arguments raised, I do not consider the question falls to be decided by the Court in the present case. The Commission may go on to the alternative basis for decision (set out in the second subparagraph of Article 5 (1) of Regulation 2784/79) only if the first basis for decision, i.e. the objective technical characteristics (set out in the first subparagraph), does not make it 'possible to establish clearly . . . whether an instrument or apparatus is to be regarded as a scientific instrument or apparatus'. Since in the terms of the contested decision the Commission did reach a decision on the basis of the objective technical characteristics, the consideration of the general uses in the Community in the sixth to the twelfth recitals does not call for review.

The Commission may return to the question of general uses in the Community only if its reassessment of the objective technical characteristics proves inconclusive.

For the reasons given above I would annul Decision 83/521 and order the Commission to pay the costs.