

EUROPEAN STUDIES

Teachers' series

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*Published under the auspices of the
Centre for Contemporary European Studies, University of Sussex*

*in association with the
European Community Information Service*

Social security in the Six

Like the United Kingdom, the EEC countries have complex systems of protection for their citizens against loss or inadequacy of income. Predictable risks, such as ill-health or old age, are covered by social insurance schemes for most of the population in these countries, family allowances are provided for all those with a specified number of children, and each system is backed up by meanstested schemes similar to Supplementary Benefits in Britain. Welfare, housing and education services also play an important part in these systems of social protection, so that the countries of the EEC can be considered 'Welfare States' in the same way as can Britain. However, complete and adequate assistance to the entire population has not come about in the Six any more than it has in the United Kingdom. The groups most in need of further protection may vary from country to country, but no state is without some continuing pockets of need.

There has been a very dramatic increase in the social services of Britain and the EEC countries since the Second World War and especially during the past decade. The earliest legislation came at very different times—for example, Germany introduced some compulsory sickness insurance in 1883 while Belgium did not do so until 1944—but later developments have been similar in all the countries. They all had a spate of legislation in the immediate post-war period and have extended the social services to ever-increasing numbers since then. There has also been a substantial increase in the proportion of national resources which is devoted to these services, an increase which has been particularly marked in the 1960s. By 1968, the proportion of national income spent on social security alone had reached between 20 and 23 per cent in the EEC countries; it was somewhat lower in Britain.

These post-war developments have been very similar in all seven countries, and indeed in most of Western Europe. Each has been concerned to protect as many of its citizens as possible against loss of income, to assist with the cost of children and to ensure that all can benefit from medical care when necessary, but the similarities are greater between the countries of the Six themselves. It is then possible to speak in general terms about social services in the EEC,

provided that one bears in mind that the countries are by no means uniform: they each have their own political and historical heritage and have developed their services accordingly. The comparison is most meaningful if it is restricted to social security, since the countries vary rather more in their education and housing policies.

Social security developed from earlier national insurance schemes and is still very much based on insurance principles. However, it does extend further than this, and the term means different things in different countries. For the purpose of this discussion, it has been defined as those services which provide benefits, usually in cash, to a substantial proportion of the population and without a means-test. Eligibility is determined by insurance contributions or by a specified burden, such as children, rather than by a low income. Old age pensions, sickness benefit, family allowances and unemployment insurance all come into this definition and so, in the EEC countries, does medical care. Housing, education and welfare services, together with cash allowances of the Supplementary Benefits variety, are thus excluded from this discussion, although they form an important part of the overall protection of the citizen.

The nature of the risks covered and the post-war growth in provision are similar in both the EEC and the United Kingdom, but the services themselves show substantial differences. Perhaps the greatest of these lies in the role of the central government. In Britain, it has much direct responsibility, employing its own staff in the Department of Health and Social Security to administer the services. In the Six, the governments exert overall control but are less inclined to play a direct part in the administration. Thus in France, for example, social security is the responsibility of semi-autonomous insurance funds which pay the nationally prescribed benefits and collect the specified contributions. Membership of a particular fund depends on one's occupation: employees in industry and commerce will use the 'General' scheme, while those in agriculture will use another and the self-employed one of four others. In the Federal Republic of Germany, sickness insurance is carried out by some two thousand funds with less state control, and individuals may choose with whom they are to insure. This is very different from the British system, where there is a single national scheme covering virtually the entire population.

A further difference is that provision is less uniform in the EEC countries than in Britain. Coverage of the whole population for all benefits has not yet been achieved in any of the six countries. This is most noticeable in the Federal Republic of Germany, where higher-paid white-collar workers are not compelled by law to insure themselves for all risks: if their annual incomes exceeded £1,700 in 1970, for example, they do not take part in the sickness insurance programme. There may also be some slight variations in the benefits provided by different funds, despite the state's overall control; an example of this is the less generous family allowance provision for the self-employed in France. In general, there is a greater emphasis on the employed worker than on others, as these were the first to gain protection by social insurance; compulsory contributions are easier to exact from those earning a wage or salary. Moreover, this emphasis is not entirely deliberate, being in part due to the desires of the self-employed to remain independent. This was particularly so in France, where post-war plans for a uniform national system failed in the face of opposition from the 'independent workers'¹, a numerically greater group than the self-employed in Britain.

Table 1

Social security: sources of finance (per cent) 1968

Country	Employer	Employee	State
Belgium	50	23	27
France	69	22	9
Germany	49	31	20
Italy	66	17	17
Luxembourg	40	23	37
Netherlands	46	39	15
UK (1968-1969)	20	22	58

Source: "The Common Market and the common man" (EEC, May 1971).

Coverage is, therefore, by no means as it is in the United

¹ Independent workers are similar to the "self-employed" category in the UK and are mainly composed of small farmers, craftsmen and shopkeepers.

Kingdom. This is both a result and a cause of the financial arrangements for social security. As Table 1 shows, in no EEC country does the contribution of the central government reach 40 per cent of the total cost and, taking the five largest countries only, the highest figure is 37 per cent. The state's financial role is very much greater in Britain, where the central government bears the entire cost of the family allowance programme and contributes approximately one-third of the cost of the other cash benefits, moreover, its contribution to medical care, the costs of which fall largely to social security in the Six is something in the region of 90 per cent of the total National Health Service budget.

The chief sources of finance for social security in the EEC countries are thus the insured person himself and the employers, and the latter are the more important. Their financial burden varies from country to country but is always higher than that of their British counterparts. In family allowances, for example, they pay a substantial contribution in five of the countries and indeed provide the entire financial resources for this service in France and the Netherlands. Employers bear the full responsibility for industrial injuries benefits in all six countries, unlike Britain where an employee must pay an insurance contribution towards this.

For the majority of citizens—those in employment—these two aspects of social security may not be very important. The emphasis on the employed worker and the consequent lack of uniform coverage will be of greater importance to others: some of the wealthier self-employed workers may be pleased not to be included in the schemes, while those with smaller incomes may be adversely affected. Of more interest to the average citizen, however, are his own contributions. These tend to be higher in the EEC countries than in Britain, except for the lowest-paid, because they are earnings-related. In the United Kingdom, there is a flat-rate contribution paid by everyone. It is largest for the self-employed and smaller for women than for men, but it does not vary with income. Above that, an earnings-related supplement is paid by all except the lowest wage-earners. In the EEC countries, contributions are a straight percentage of earnings up to a specified maximum, and there is no flat-rate element. The low-paid worker will thus pay less than his British counterpart. For others, however, contributions are generally high by British standards: even in France, where they are lower than in the other countries, an employee must contribute 6.25 per cent of his earnings below 28 pounds per week. These figures give an indication of the size of the contributions, but they should not be taken to be strictly comparable with those in Britain, since the costs and standards of living are not the same.

Since the contributions are earnings-related, benefits usually follow the same pattern. Some of the countries guarantee a minimum retirement pension, but this—unlike the present British benefit—is not intended to be the norm. Others adhere strictly to the earnings-related principle. The only benefits to be the same for all regardless of contributions are medical care, which is not a cash benefit, and family allowances, to which the insured person does not contribute. There is thus a definite link between earnings and benefits received. A well-paid individual may find this more satisfactory than the British system but someone who is low-paid may find his benefit very inadequate. It is interesting to note here that the British system has been tending towards earnings-related benefits in social security in the past decade.

For the citizen, the greatest single difference in social security provision between the United Kingdom and the Six is concerned with medical care. In all of the EEC countries, its provision is linked, to a greater or lesser extent, with insurance. Those who have paid the required contributions may claim assistance with medical costs for themselves and their dependents. In some countries, the patient must find the full cost himself and will then be reimbursed by the

insurance funds, while in others he may be entitled to free treatment, but in either case the system is very different from the National Health Service with its virtually free treatment for any citizen regardless of contributions. This will be examined in more detail later.

Thus the main features of the social security systems in the EEC which mark them out as different from that used in Britain are the lesser degree of direct state involvement and, especially, the lesser reliance on central government funds; the lack of a single national scheme and the exclusion of certain groups from some benefits; the large employer contributions; the earnings-related nature of the benefits and contributions; and the insurance basis of the medical care scheme. The risks covered by the systems in all seven countries are broadly similar. Within the EEC itself however there are many smaller differences, since each country has developed its social services in a purely national context. Some of these differences will become apparent when the services are examined in more detail.

There are four main groups of social security provision which will now be considered, old age insurance, which normally includes survivors and disability benefits; sickness and maternity insurance; family allowances; and unemployment insurance. Industrial injuries protection also forms part of social security, but it will not be examined in detail since it is less complicated. It is an employer-financed scheme paying medical costs and a pension where necessary to those suffering from an industrial injury or occupational disease. Apart from the absence of a contribution by the insured person himself, it is not very different from the British system.

Old age and related benefits

Retirement pensions in the EEC are very closely related to contributions. Not only are they earnings-related but their size also depends on the number of contributions made. In France and Italy, a minimum of fifteen years contributions is required before any benefit (other than a small flat-rate one in France) may be granted, and all the countries relate at least part of the pension to the number of years of insurance. Thus a man with thirty years contributions may receive a pension twice as large as that of a man insured for only fifteen years. If his income was twice as large as the other's during his working life, the difference between the two pensioners will be even more pronounced.

The size of the pension varies very much between the countries. In the Federal Republic of Germany, it can reach two-thirds of previous earnings, although it is more usually 40 or 50 per cent; in France, the maximum is 20 per cent. However, the latter country has institutionalised occupational pensions schemes, and these now cover almost all employees outside agriculture and domestic service. In general, therefore, the pensions provided by these social security schemes are larger than those in Britain, except for persons with very low wages or few years of contributing to the scheme. Some of the countries have no guaranteed minimum pension and others provide this only on a means-tested basis, and so hardship among the elderly is no less present in the Six than it is in the United Kingdom.

All the countries include survivors insurance in their retirement pensions schemes, and three of them include disability insurance. The others administer this either separately or as part of the sickness insurance scheme. Benefits for survivors are related to the pension to which the head of the family was entitled at the time of his death and are therefore earnings-related to some extent. As in Britain, entitlement to benefit may depend on the age of the widow and may be forfeited on remarriage. Disability pensions

are also earnings-related and may be varied according to the extent of the handicap.

Sickness and maternity insurance

An insured person is entitled to two types of benefit: medical care for himself and his dependents and an earnings-related sickness benefit for himself if he is unable to work. It is the first of these which is most interesting to someone accustomed to the National Health Service. In three of the countries, an individual can be treated wherever he wishes but must bear the full cost himself; the insurance fund will later reimburse some or all of the amount to him according to a fixed scale. This reimbursement may be as low as 70 or 75 per cent in France and Belgium. In the Netherlands and the Federal Republic of Germany, treatment can be obtained only from those doctors registered with the insurance fund, but the patient does not have to pay. In these two countries, therefore, the system is nearer to that used in Britain, but it is still strictly related to insurance. Where a system of partial reimbursement operation and means-tested assistance may be available for the poorest. This is very similar to the exemption system for prescription charges in Britain.

Maternity benefit is similar, in that the dependents of an insured person are entitled to treatment and a woman insured in her own right is also entitled to an earnings-related cash benefit during her absence from work. Treatment is available under the same conditions as that for illness, except in France, where it is free of charge. Maternity grants are also paid in four of the countries, being included in the family allowance scheme in three of these. Their level is generally higher than that of the equivalent British benefit: for example, it is approximately fifty-eight pounds in France.

The provision of medical care in the EEC is thus substantially different from that in the United Kingdom. Particularly in the countries operating the reimbursement system, there is greater freedom of choice in that the patient can go to whichever doctor he wishes without being registered. He can also choose his treatment to a certain extent, although anything costing more than the prescribed amount will not be reimbursed in full. However, if he cannot find the initial payment, he may be disinclined to seek treatment, and the greater independence of the doctors can lead to difficulties in planning the service. The costs in each country cause as much concern as do those of the National Health Service and contributions must be high to meet these. Even in France, with its large direct charges, the contribution of the insured individual is 3,5 per cent of earnings up to 28 pounds per week.

Family allowances

With the exception of the Federal Republic of Germany, the EEC countries lay greater emphasis on these benefits than does Britain. In four of the countries, an allowance is paid automatically for the first child and this also happens in France if the mother does not go out to work. Benefits tend to be larger than in Britain, for example, nine pounds per month for the second child in Belgium and eleven pounds for the third and fourth child in France, although here again one must bear in mind that costs of living are not the same in each country. Additional benefits and services are provided in some of the countries, such as an extra allowance for handicapped children in Belgium and Luxembourg. France has the greatest number of these

additional benefits, ranging from housing and prenatal allowances to welfare services.

The one exception to this pattern of substantial provision for the family, financed almost entirely by employers, is the Federal Republic of Germany. The system used there is very much closer to that in Britain: entirely financed out of taxation, it provides benefit from the second child only. For this child, the allowance is only three pounds per month, but it is substantially larger for subsequent children. Unlike the British system, automatic entitlement to benefit comes only with the third child and only those with low incomes may receive an allowance for the second, but it may be paid for longer than the British benefit: up to age eighteen normally and 25 in certain circumstances.

Unemployment insurance

There is no great similarity between the countries of the EEC in their provision for unemployment, except that they have traditionally placed less emphasis on it than have British governments. Neither France nor Luxembourg has a statutory unemployment insurance programme, although France has occupational provision for the majority of employed workers. These two countries provided flat-rate benefits to the unemployed, with a means-test in some circumstances. Belgium also grants fairly standardised benefits, but the remaining three countries pay earnings-related allowances. All six, like Britain, demand of the recipient that he be prepared to take suitable employment, and all except Belgium set a limit on the length of time during which benefit may be paid.

Social security provision in the Six thus has broad similarities, but the details of the services are varied, each country has developed its own system over a long period of time to meet its own particular needs. Although the Treaty of Rome makes provision for the countries to 'harmonise' their social services, progress has been slow in this direction. Certain agreements have been made with regard to the contributions and benefits of migrant workers, but these have been essentially administrative: they have not altered the pattern of provision. The expenditure patterns of the different countries have, however, come somewhat closer together in recent years so that some of the differences are being modified. Thus the traditional French emphasis on

family allowances has been lessened in favour of old age pensions, while the reverse has happened in the Federal Republic of Germany. The overall expenditure on social security has also come closer together in recent years, but this may be for reasons unconnected with the existence of the EEC. Any substantial increases in similarity between the services of the different countries seem unlikely in the near future.

Despite the existence of these differences, it remains clear that the social security systems of the Six share certain features not found in Britain. The less direct role of government in both administration and finance is the most significant of these, but for the average citizen the contributions and benefits are more important. The relation to earnings and the frequently higher contributions provide more generous benefits than in Britain for those with average and above-average incomes, but the lowest-paid may be in an unsatisfactory position. The medical care systems are more complex, since a patient's insurance entitlement must always be investigated and there is less control over GPs and hospitals. In the countries operating a reimbursement system, treatment is more expensive for the patient, especially in the short term. In general, it may be said that social security in the EEC caters for the average citizen with a reasonable income and not for the poorer members of society. Family allowances are usually flat-rate and tax-free, other benefits reflect previous earnings, medical provision works on the assumption that the patient can afford to bear part of the cost himself. Those with exceptionally low incomes are catered for outside the social security system. Although many of Britain's means-tested benefits are also outside social security as it is here defined, she still covers lower-paid workers more fully by insurance, with the emphasis on flat-rate benefits and free medical care. However, this pattern is changing slightly and Britain is adopting certain EEC features, such as earnings-related benefits and charges in medical care.

Further reading

Comparative tables of the Social Security Systems in the EEC, Commission of the European Communities, July 1971.

Women at work in the Common Market

In the European Community, as in Britain, women make up about a third of the labour force though the proportion varies from country to country. Except in the Netherlands, most of them are married. They make their greatest contribution in the service sector. Although the Rome Treaty requires equal pay for like work, women workers tend to be concentrated in unskilled occupations and their earnings remain well below those of men. They are the subject of a substantial body of protective legislation—not yet harmonised among the Six—some of which would seem outdated and undesirably discriminatory in its effect.

Article 119 of the Treaty of Rome

Women workers in the Community enjoy in theory at least an advantage over their British counterparts: article 119 of the Rome Treaty required each state to ensure in the course of the first stage, i.e. between 1958 and 1961, and subsequently to maintain, the application of the principle of equal remuneration for equal work between men and women. Under current legislation equal pay will become law in the United Kingdom only in 1975. In practice, however, are women so much better off in the Community than they are in Britain? The Rome Treaty may have got them equal pay for doing the same work as men; but has it changed attitudes to the part that women could and should play outside the home: have girls as free a choice of career as boys; are some occupations still barred to women, either formally or by custom and practice; do women now have the same opportunities as men to train for manual and intellectual skills; can they compete on equal terms for top jobs; and not least important, have women in the Community reappraised their own potential worth to the labour market? Equal pay without equal opportunity is a miserable prize, hardly worth the winning; but equal opportunities have to be actively exploited. Clearly time is needed to break the near monopoly of political and economic skills that men have built up for themselves over the past two centuries; that the progress of the Community's women to date is somewhat limited is indicated by the fact that, if interpreters are excluded, there is no woman in either of the top two grades of the Commission's civil service in Brussels. Women account for only 5 per cent of all grade A officers, and 49 out of a total of 77 are in the two lowest grades (A6 and 7, where they make up 14 per cent of the total); only 3 are in A3 out of a grade total of 270.

Article 119 had a very limited aim, but even so its initial impact was small; it did little to reinforce the application of a principle already enshrined in the constitutions of France, Italy and Germany or to induce the Benelux countries to revise their customary practices. In 1961, therefore, its meaning was more precisely spelt out and brought into line with the International Labour Office convention 100, already ratified by four of the Six (and now ratified by all but the Netherlands); this calls for equal pay for work of equal value. At the same time it was stipulated that differentials between men's and women's pay should be reduced to 15 per cent by June 1962; to 10 per cent a year later and eliminated by December 1964. A Commission Survey, published last year and relating to end 1968, reported progress, but noted that member states were still

far from having completely respected all the commitments entered upon. In all countries except the Netherlands, a woman, who feels that she is being discriminated against in respect of pay on grounds of sex alone can bring an action in the courts, and there has been a substantial reduction in instances of direct sex discrimination in collective agreements throughout the Six (it still exists, for example, in dairies and cheesemongeries in Belgium, in the German leather industry and widely in the Netherlands); but the Commission deplors the continued absence of such agreements in a number of industrial sectors and geographical regions in every country, particularly in distribution and the service industries and in small businesses. It is also fully alive to the fact that an apparently non-discriminatory collective agreements does not guarantee a woman the same treatment as a man. For example, only in Holland are the rates set in such agreements roughly the same as those actually paid; elsewhere agreed rates are minima, each firm negotiating actual pay scales. Again, the outlawing of the category 'women's work' has solved no problems: such work has been rechristened 'light' in Germany, 'simple' or 'light' in Italy, 'asexual' in Belgium; it remains ill-paid and is undertaken only by women. Yet again, in evaluating jobs male attributes such as strength are rated more highly than female ones, such as dexterity; France is criticised on this count; the Netherlands, on the other hand, is commended for having a very fair system of job evaluation.

Thus, despite the Common Market's 13 years, it is impossible to generalise to any great extent about the position of working women in the Six, let alone to make confident comparisons between their status and that of British women workers; each country tends to maintain its traditional ideas of woman's place in society, modifying long-standing practices only slowly and reluctantly.

The following outlines the part played by women in the Community's labour force and the special legislation that is applied to them as workers. To examine why they play the role they do, and to explore ways in which the labour market might be unified—either on a geographical or on a sex basis—would require a separate volume on each country.

A profile of women at work in the Community¹

In Germany and France, as in Britain, about 40 per cent of women of 14 years and over are at work; in Belgium

¹ The statistics used in this article are taken in the main from two Community documents (*L'emploi des femmes et ses problèmes dans les états membres de la CEE*, rapport de Mme E. Sullerot, July 1970; and *Rapport de la Commission au Conseil sur l'état d'application au 31 décembre 1968 du principe d'égalité entre rémunérations masculines*

about 30 per cent; but in Italy and the Netherlands only about a quarter. If the over 65s as well as the under 14s are eliminated the proportion rises to not far short of a half in France but remains at 26 per cent in the Netherlands. Most women workers are married; the proportion ranges from 62 per cent in Belgium to 28 per cent in Holland and is something over 55 per cent in Britain and France. In all countries except Belgium there are substantial regional differences in activity rates. In Britain the highest proportions are found in a diagonal belt of industrialised country running from the South-East through the West

In West Germany, France and Great Britain women form rather more than a third of the active population, but in Italy and Belgium they represent only 27-28 per cent and in the Netherlands under a quarter. Their status within the labour force varies a good deal both within the Community and between Britain and the Community. In Britain the vast majority are employees; self-employed and family helpers account for only 4 per cent of the total. In the Community, however, family helpers play a substantial role, particularly in Italy, and self-employed women are very

	West Germany	France	Italy	Belgium	Netherlands	Great Britain
Working women, 1968 - million	7.8	7.4	5.0	1.0	1.0	8.9
of whom:						
self-employed %	6	9	16	16	4	4
employees %	76	75	62	69	85	96
family helpers %	18	16	22	15	11	—
Women as a proportion of the working population %	34	37	27	28	23	35
Activity rates among women of 14 years and over %	37	39	25	29	24	40
Proportion of working women who are married %	52	55	53	62	28	57

Midlands to the North-West; the lowest, in the agricultural areas of the South-West and East-Anglia. In the Community, however there is no such close correlation between industrialisation and women's activity rates; Berlin and Paris, it is true, have the highest rates in the Six—with more than half of all women in the appropriate age groups working—but in the Rome region the proportion is under a quarter and in north-west Italy between a quarter and a third. Against this this agricultural areas of west and central France boast among the highest rates. In the 14-19 age group about the same proportion of boys and girls are at work; but whereas most men between 20 and 60 work, among women the activity rate is highest in the 20 to 24 age group, falling sharply in the next quinquennium and remaining low until the 40's when there is usually some recovery before a renewed decline in the 50's and 60's.

important in Italy and Belgium and to a lesser extent in France and West Germany. Most of these self-employed women are, in fact, small farmers—sometimes widows, sometimes wives whose husbands have left the land for more profitable work in the factories. Throughout the Community women provide a greater proportion of all workers in agriculture than they do of paid workers—in Germany they account for more than half of all agricultural workers, only about a quarter of paid agricultural workers. In Britain the opposite is the case. In other sectors the self-employed and family helpers are less important, and women account for roughly the same proportions of all workers as of paid workers. Their contribution to the work force is greater in the service industries, where in Britain, France and Germany they make up over 40 per cent of the

Women's part in the labour force: proportion of all workers/employees (per cent)

	West Germany		France		Italy		Belgium		Netherlands		United Kingdom	
	All Workers	Employees	All Workers	Employees	All Workers	Employees	All Workers	Employees	All Workers	Employees	All Workers	Employees
Agriculture	52	26	34	15	31	26	29	—	12	7	10	19
Industry	24	28	24	24	21	21	18	19	14	14	25	26
Services	42	41	48	48	31	30	39	36	33	34	42	48
Total	34	31	37	36	27	24	28	26	23	24	35	38

et féminines, June 1970) and were collected by the Community's statistical office on a broadly comparable basis; the UK figures are those published by the Department of Employment. The intention is to give a broad picture of the position at the end of 1960s; the importance of minor differences should not be over-rated, and margins of error may be fairly substantial.

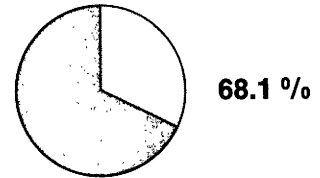
total, in Belgium and the Netherlands more than a third; in Italy, however, their share amounts to only 30 per cent. In industry they are least well represented in the Netherlands (only 14 per cent of the work force), while in the major countries they contribute about a quarter.

DISTRIBUTION OF SKILLED, SEMI-SKILLED AND OTHER WORKERS IN MANUFACTURING INDUSTRY IN THE COUNTRIES OF THE E.E.C. (1968) : PROPORTION OF MEN AND WOMEN

Average hourly wage of women
in manufacturing as proportion
of men's wage

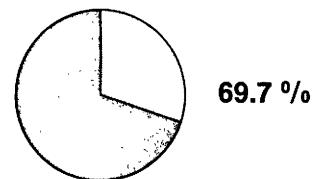
BELGIUM

Skilled		27.3 % 4.1 %
Semi-skilled		22.2 % 6.8 %
Others		24.8 % 14.8 %



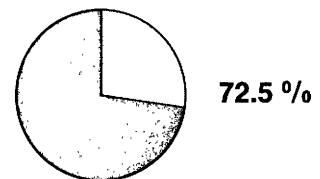
GERMANY

Skilled		34.7 % 1.6 %
Semi-skilled		24.2 % 12.3 %
Others		11.5 % 15.9 %



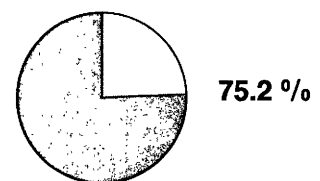
FRANCE

Skilled		31.7 % 3.6 %
Semi-skilled		23.4 % 13.1 %
Others		15.6 % 12.6 %



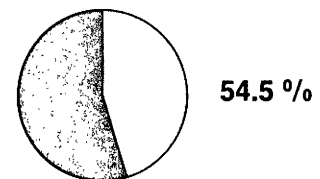
ITALY

Skilled		30.7 % 5.6 %
Semi-skilled		25.5 % 12.2 %
Others		13.2 % 12.9 %



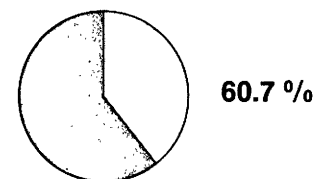
LUXEMBOURG

Skilled		32.6 % 0.2 %
Semi-skilled		27.5 % 1.6 %
Others		34.0 % 4.1 %



NETHERLANDS

Skilled		32.0 % 2.0 %
Semi-skilled		31.0 % 7.3 %
Others		20.2 % 7.5 %



Proportion men
 Proportion women

The service industries, to which women make such a big contribution, in their turn provide women with the greatest employment opportunities: they employ over 70 per cent of all women workers in the Netherlands, about two-thirds of those in the United Kingdom, France and Belgium, and about half in Germany. Agriculture is an important employer in France, Germany and Italy, but negligible in the Low Countries and the UK. Industry takes the highest proportion of women employees in Italy, followed by Germany, with France and Britain next and the Netherlands well behind all the rest.

Within the manufacturing industry, women are heavily concentrated in a few sectors and in the lowest grades: they remain as they always have been, a major element in the textile and clothing industries, although in Britain the introduction of sophisticated machinery is depriving them of some of their traditional jobs, particularly in cotton textiles. For the rest, they are mainly in work that has never involved heavy physical labour, that requires little training, or that demands manual dexterity, such as electronic engineering. Within these broad groupings, custom and practice lay down that some work is for men other for women, often on a wholly irrational basis and varying not only between countries but quite locally within countries.

in manufacturing are skilled, but in France and the Netherlands the figure is only 12 per cent and in Germany a mere 5 per cent; unskilled workers make up more than half the total female labour force in manufacturing in Belgium and Germany and nearly 70 per cent in Luxembourg. Only in Belgium and Luxembourg are more than a third of men in manufacturing classed as unskilled.

In the service sector the separation into men's and women's work is no less pronounced: in all countries domestic, personal and welfare services are overwhelmingly female preserves, though with characteristic national distinctions: for example, restaurant workers in Germany are mainly women, in Italy mainly men. In the professions, teaching is predominantly a man's job in Germany and the Netherlands, a woman's in France and Belgium, as it is in the United Kingdom. In Germany most furriers, in France most pharmacists are women. Women have done better in the legal profession in France than they have in the rest of the Six or in Britain; on the other hand there are more women doctors in the UK than there are in France, Germany or Italy. In no Western European country do women engineers approach the importance that they have in the USSR: in France, which makes the best showing, even now fewer than 4 per cent of all engineers are women.

Distribution of the female labour force (per cent)

	West Germany		France		Italy		Belgium		Netherlands		United Kingdom	
	All Workers	Employees	All Workers	Employees	All Workers	Employees	All Workers	Employees	All Workers	Employees	All Workers	Employees
Agriculture	14	12	14	2	27	12	6	—	4	1	1	1
Industry	35	38	26	31	32	42	29	36	24	26	36	33
Services	51	50	60	67	42	46	65	64	72	73	63	66
Total	100	100	100	100	100	100	100	100	100	100	100	100

In general, a third or slightly more of all manufacturing workers in the Six are skilled and roughly another third semi-skilled, but as the enclosed chart shows women make up a near negligible fraction of the total. It is claimed that in Italy 18 per cent and in Belgium 16 per cent of women

Women employees as a proportion of all employees in certain major manufacturing and service industries (per cent)

	West Germany	France	Italy	Great Britain
<i>All manufacturing industry</i>	29	31	28	31
Food	44	37	41	42
Textiles	60	57	66	47
Clothing	82	81	74	79
Leather	51	45	43	43
Electrical goods	42	40	33	39
Metal goods	21	16	18	18
Chemicals	26	27	23	29
<i>All services</i>	41	48	30	48
Distribution	54	44	31	55
Banking and insurance	44	44	15	45
Administration	26	40	31	30
Miscellaneous services	61	71	51	62

Although in general women probably have easier access to training in the service sector than they do in industry, they are still concentrated in the lower paid occupations and except in women's professions hold very few top jobs. No statistical comparison of men's and women's pay is possible in this sector; but the Commission has attempted to compare the average hourly earnings of men and women in manufacturing. Although the figures are not very up-to-date and are very general they serve to illustrate the very secondary position occupied by women.

Protective—and discriminatory?—legislation

Some of women's difficulties in the labour market vis-a-vis men lie in legislation which enshrines real or supposed differences between the sexes; but some lie in the failure to acknowledge that men's and women's life patterns are different—and that women have changed very substantially and are still changing. Today's labour market is organised by men for men, and employers continue to claim that female labour is less flexible, less trainable, less reliable and more costly to organise than is male labour.

The legislation can be divided into two groups: that centering round childbearing and that which stems from the image of woman as something frailer and less than a man. All the Community countries protect the working mother, but each in its own way. In general work prejudicial to health (variously defined) is forbidden to pregnant women and nursing mothers; and expectant mothers may not be forced to work for a period varying from three months

*Average hourly wage of workers in manufacturing
(per cent)*

	Rate of Increase						Differential between men's and women's wages, October 1966			
	1964-1966		1966-1968		1964-1968		Skilled Workers	Semi-skilled Workers	Unskilled Workers	All Workers
	Men	Women	Men	Women	Men	Women				
Germany	13.9	17.3	9.5	8.8	24.7	27.8	-26.8	-25.6	-21.8	-30.3 ^a
France	12.3	11.3	22.1	24.7	37.1	38.7	-25.8	-19.4	-15.6	-27.5 ^a
Italy	10.9	12.6	9.8	10.0	21.7	23.8	-29.4	-24.0	-9.1	-24.8
Belgium	18.9	21.8	11.5	12.1	32.6	36.5	-33.2	-28.7	-25.0	-31.9
Netherlands	18.8	24.2	17.0	20.5	38.9	49.7	-40.1	-39.9	-31.3	-39.3

^a The apparent anomaly by the average being higher than the individual groups is explained by the fact that women workers are concentrated in the unskilled group while men dominate the skilled and semi-skilled groups.

(in Italian industry) to four weeks (Germany) before childbirth—though in Holland there is no obligatory pre-natal holiday. The mother is usually accorded a 4-6 week holiday after a birth, and in Italy this can be prolonged to 6 months without any loss of seniority rights. Women may not be sacked during pregnancy in France, Germany or Italy, or for one month after a birth in Belgium, 4 months in Germany, or until the child is a year old in Italy. In the Netherlands, on the other hand, a work contract may, without offence, specify pregnancy as a grounds for termination of appointment. In Germany sickness-insured women on maternity leave get a maternity allocation in lieu of a salary, based on average pay over the last 3 months; in Belgium they get approximately 60 per cent of their normal pay; in France they get 0.5 normal pay from social insurance (two-thirds if they have 3 or more children); in Italy they get about 80 per cent. But maternity leave over, working mothers sink to being the least privileged members of the labour force; their chances of getting a good job, of being trained, or being in line for promotion are all lessened, while they run the risk of being the first to get the sack if activity slackens. It is assumed that their children's needs will have priority over their employer's. Like Britain, the Six have hardly touched the problem of the care of the pre-school age child; creches and kindergarten (some state run, some private, some provided by employers) cater for only a fraction of the under-sixes. And not much has been done to align school and working hours and holidays.

Other labour legislation applying specifically to women is often antiquated—some dating back to 1914—and frankly discriminatory in barring them from ever qualifying for the highest pay scales. In Belgium a married woman must have her husband's permission to work, and women are barred from certain branches of public administration, e.g. in the ministry of finance in the Netherlands, marriage is a permissible grounds for dismissal. Elsewhere, however, such illiberal legislation has been repealed; but the heavy and unhealthy work that is generally barred to women has not been redefined in terms of modern industrial techniques. Hours that may be worked—in total, at a stretch, at certain times of day—are always restricted, though not always in the same way. Overtime is variously defined and night-work (forbidden to women in industry) takes place between 6.00 p.m. and 7.00 a.m. in the Netherlands, between 10.00 p.m. and 5.00 a.m. in France, Italy and Luxembourg; Belgium more rationally forbids men or women to work between 10.00 p.m. and 6.00 a.m. except in certain listed occupations.

As in the United Kingdom, so women in the Community retire earlier than men and get lower pensions; and although taxation of single women is non-discriminatory, that of

married women is not designed to encourage them to work and in many cases, particularly those of highly qualified women, inhibits them from doing so. Only in Germany can a married woman choose between a joint or a separate assessment; in France and Luxembourg husband and wife's income must be accumulated; in Italy some taxes are levied on the separate incomes, some on the joint income; in the Netherlands a wife gets a tax-free allowance of one third of her income, the rest is accumulated; in Belgium, too, a mixed system exists.

What's to be done

Clearly women at work in the Community, as in Britain, continue to suffer a number of disadvantages compared with men. Some of them can be removed by legislation but most of them are so deep rooted in the traditional view of woman's place in society that they can only be eliminated gradually by modifying the attitude of society towards women and of women towards themselves. It is vital that women should realise the implications that changing demographic trends hold for their life patterns: younger marriages, fewer children, borne over a shorter timespan, mean that in future a woman can expect to have a working life of some 30 years after her family has reached school age. To make full use of this she must be prepared to train, to accept responsibility, to take decisions about her own future and to play an active part in organisations where wages and conditions of work are decided, e.g. trade unions, in order to ensure that newer techniques (such as job evaluation) are not misused and women are not fobbed off with equality of pay and opportunity on paper, continued discrimination in practice.

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Commercial shipbuilding in Western Europe

The West European shipbuilding industry has expanded quite substantially during the last decade, yet the larger it grows the greater are the losses it makes. The cause of the losses is the remarkable competitive ability of Japan and the reason for continued existence is largely social—governments are not prepared to face the heavy unemployment that closure would bring.

Shipbuilding is very largely the province of the industrial maritime countries of the world for they possess not only the requisite technology to construct steel ships, but also the demand for vessels in order to pursue international trade by sea. In 1970 the industry was highly concentrated into two regions of the world, Japan, with 48 per cent of the tonnage launched, and Western Europe, responsible for 41 per cent of the total. The USA made only a small contribution, amounting to 1.5 per cent, for shipbuilding is a large user of man power and America's high level of wages makes it difficult to build ships at competitive prices. This contrasts with the situation in the early nineteenth century when New England was the world's leading producer of wooden vessels. The switch to steam-powered, iron ships that took place in mid-nineteenth century gave Britain a great locational advantage and the American industry declined. British iron manufacture and steam power technology were the most advanced in the world, and in addition Britain possessed two coastal coalfields where iron production and heavy engineering were well developed. These two areas, Clydeside and Tyneside, alone launched three-quarters of the world tonnage during the 1890's and Britain could claim between 80 and 90 per cent of the world total. The inter-war period saw the emergence of yards in Western Europe and in the late 1930's Britain's share had fallen to 35-40 per cent of the world's output. The last two decades have seen a dramatic change in emphasis from Western Europe to Japan who produced no ships at all in 1950 and yet had overtaken Britain by 1956.

It is the paradox of shipbuilding in Western Europe that continued expansion has not resulted in prosperity and that losses have not led to contraction. As the demand for large ships has grown, yards have appropriately expanded their facilities and when profits have not been forthcoming, yards have been kept open by the injection of governments funds to prevent heavy localised unemployment. This situation is as true of the EEC countries as it is of Great Britain and of Sweden where productivity is the highest in Western Europe. The ability of Japan to produce ships at prices substantially lower than can be achieved in Western Europe is the root of the problem. The Geddes Report of 1966, reported that British dry cargo bulk carriers were equal in price to those built in Europe, but they were between 7.5 and 15 per cent above Japanese prices, and that British tankers, while being more costly than the European vessel, were between 15 and 20 per cent more expensive than those built in Japan. Since Japanese yards now have sufficient capacity to meet the entire world demand, it is clear that European yards have effectively become mere instruments of governmental social policy. Indeed, in January 1972 an OECD report put forward proposals for the restriction of further construction of shipbuilding facilities. Support for existing capacity can perhaps be justified, but the case for subsidising expansion is not weighty.

Table 1

Merchant Vessels launched in Western Europe and Japan
'000 Tons

	1953	1960	1970
Japan	557	1,732	10,475
Sweden	485	711	1,711
West			
Germany	818	1,092	1,687
Great Britain	1,317	1,331	1,237
France	235	594	960
Spain	46	161	926
Norway	118	198	639
Italy	263	434	598
Denmark	142	219	514
Netherlands	341	567	460
Belgium	61	130	155
World	5,095	8,356	21,689

The cause of the price differential between Japan and Western Europe may be examined under four headings.

1. *Labour costs.* Despite the introduction of labour saving methods as the pre-fabrication of assemblies, it has not proved possible to mass produce large numbers of identical ships and the industry has remained an intensive user of labour. Wage bills account for 15-20 per cent of the cost of an average ship in Western Europe, but in a high wage economy like the USA the percentage is about 40, thus explaining the unimportance of the industry in that country. It was hoped that increases in the size of ship would bring economies in labour needs, but it has been discovered that for tankers of more than 133,000 tons, labour requirements per ton of vessel actually increase, so that the really large tankers can be produced most cheaply in areas of low wages. In the mid-1950's Japan was an exceptionally low labour cost economy, with hourly wages between one quarter and one third those of the EEC countries. Since then Japanese wages have increased quite markedly, but it is not the hourly wage that is critical, it is the productivity of labour that is the vital consideration. The British case highlights the problem. Not only is management conservative, but also the existence of several craft unions creates demarcation disputes and low productivity, giving rise to low profits and an inability to buy new equipment. The principal unions are the Amalgamated Union of Engineering Workers, the Electrical Trades Union, the Transport and General Workers Union, the Associated Society of Boilermakers and Shipwrights and the Union of Construction, Allied Trades & Technicians. Between 1960 and 1964, 1,457 days per 1,000 workers were lost as a result of industrial disputes; the figures for coalmining and vehicle production were 667 and 436 respectively. The strike rate in shipbuilding is five times greater than for manufacturing as a whole. At the Belfast yard of Harland and Wolff, 70-80 man hours are needed to build 1 ton of ship, whereas Japanese and the best Swedish yards require only 20-30 man hours. With such a difference in efficiency Japanese builders could afford to pay very much higher wages than those in Belfast. In fact the average Japanese wage rate is 66 p per hour compared with 63 p in Britain. German and Danish wages are also higher than those in Britain, and those in Sweden are twice the British rate at £1.33 an hour.

Japanese yards are able to benefit from the peculiar nature of labour-management relations that exists in Japan. An unspoken pledge of loyalty obtains between the company and its workforce. A man will expect to work for one firm for life, in return for which he is never dismissed and is able to participate in a variety of fringe benefits such as low cost housing. Strikes are extremely rare within this paternalistic framework and round the clock shifts are the rule.

2. *Innovation and economies of large scale production.* The Japanese have come closest to the use of mass production techniques and they have applied the best traditions of the vehicle industry to the manufacture of diesels and turbines by flow production methods. The 'tear drop' bow, which improves speed without a proportionate increase in engine capacity, originated in Western Europe, but it was the Japanese who adopted it as standard in their tankers. An important field for Japanese innovation has been the construction of very large building docks. The economies of large scale production are such that as the size of vessel increases, the construction cost per ton falls, although obviously the cost of the complete vessel rises with its size. There is much incentive, therefore, to expand capacity and additionally running costs per ton of vessel fall quite dramatically when the ship is in operation. The big oil companies in particular have thus been eager to buy supertank-

ers. Yards on the Clyde, Wear, Tyne, Seine and Maas have consequently been expanded to take 200,000-300,000 ton tankers. AG Weser and Bremer Vulkan can build ships of 250,000 tons and expect to be able to launch 500,000 ton vessels when the Weser is dredged, and Blohm und Voss are building a 400,000 ton dock using a disused canal adjacent to the River Elbe at Hamburg. There are many other examples. The scale of the Japanese operations, however, is at quite a different level for the docks now under construction in Western Europe are already obsolescent by their standards. The Kawasaki company is building a 900,000 ton yard and Ishikawajima Heavy Industries (IHI) have almost finished an 800,000 ton dock at Kure, 30,000 m² having been reclaimed from the sea for the purpose. Rather than wait for the dock to be completed, IHI are using part of it to build a 477,000 ton tanker for Globtik Tankers. Nippon Kokan are contemplating a 1 million ton dock at Tsu. Having built these huge docks the Japanese then use them much more intensively than is the case in Western Europe. Nippon Kokan, for example, completed 6 supertankers from one dock in 1971, but the recently modernised Swan Hunter yard on Tyneside does not expect to build more than 1.5 supertankers each year. By spreading the cost of the equipment and of the dock over a large number of ships, the Japanese are able to reduce the price of each vessel still further.

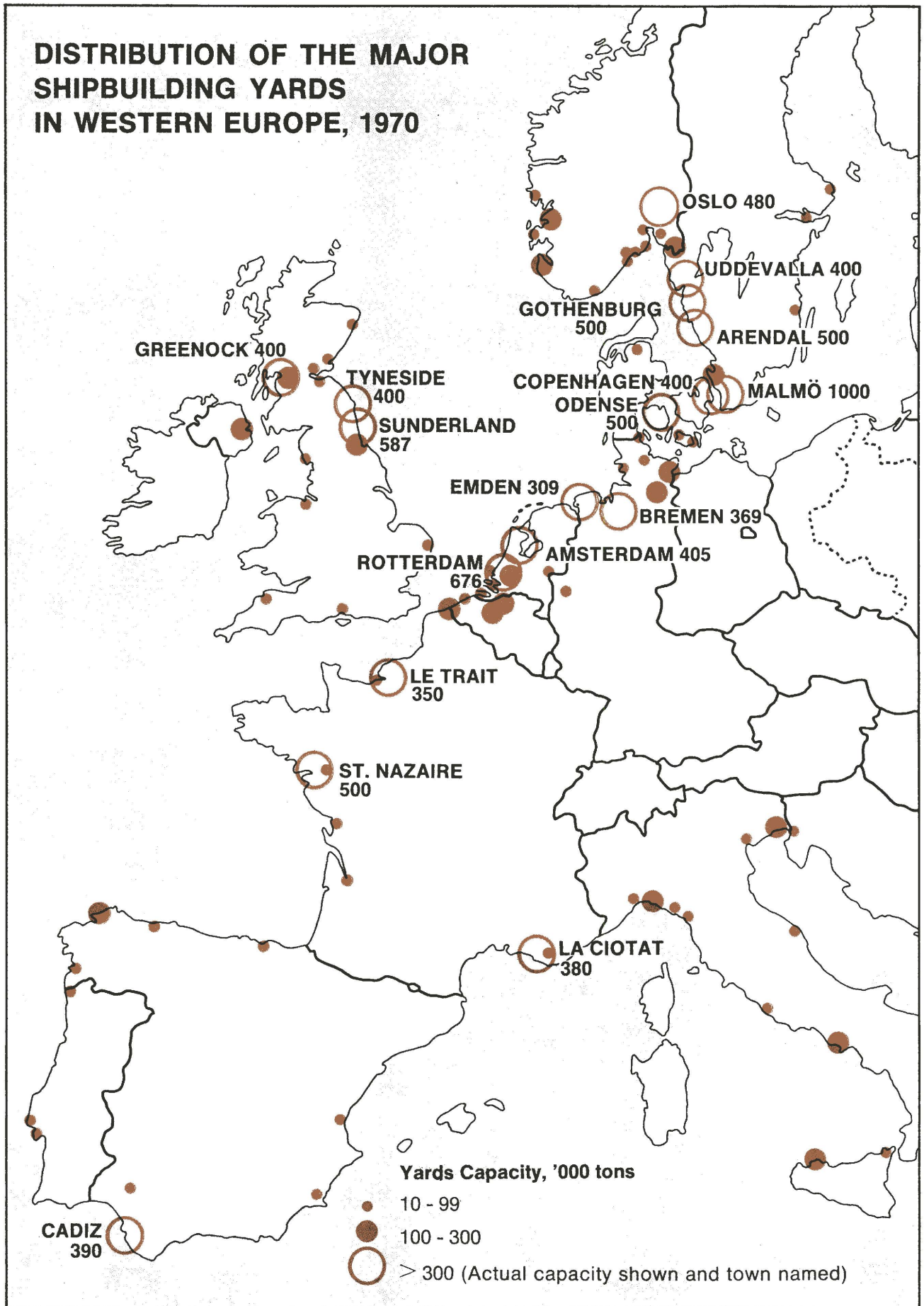
3. *Integration.* Some West European yards have financial links with steel firms, as do AG Weser with Krupp and Blohm und Voss with August Thyssen Hütte, the largest German steel combine. Other yards have developed profitable subsidiaries such as the important diesel branch of Burmeister and Wain at Copenhagen, while many have entered shiprepair, as have Blohm und Voss and Verolme in Rotterdam. The Japanese, on the other hand, have been much more thoroughgoing in their efforts at integration and have diversified into both mechanical and electrical engineering. Since fabrication requires much work to be carried out by specialists, there are obvious advantages in integration of this kind. Integration does not end here, however, for Japanese shipbuilders are merely part of huge trading companies, or zaibatsu, with interests across the board from real estate, finance and insurance through to iron and steel manufacture. Shipyards thus have both access to supplies and favourable supply prices. There are nine of these zaibatsu in the Japanese shipbuilding industry and they produce nearly half the world's tonnage. West Germany on the other hand builds one fifteenth of the world's output from five major and 45 smaller yards.

4. *Capital supply.* The Japanese do not lack for supply of capital owing to the very size of the zaibatsu. Three of these, Mitsubishi, Mitsui and Sumitomo, all with shipbuilding divisions, have total assets of 14.3, 13.3 and 13 per cent respectively of the total assets of firms listed on the Tokyo stock exchange. With such massive backing the appropriate investments can be made to improve profitability. In Western Europe profits have been so small that it is difficult to raise capital for improvements of any sort. Since many yards have not made a profit for half a decade, only governments have seen fit to invest in them.

Rationalisation by West European shipyards

Faced with such extraordinarily gloomy prospects, European yards have been forced to reorganise themselves quite radically. Ironically, governments funds, by shoring up

DISTRIBUTION OF THE MAJOR SHIPBUILDING YARDS IN WESTERN EUROPE, 1970



crumbling edifices, have slowed down the process. Nevertheless changes have been undertaken. Some are of a minor nature and include such measures as a 20 per cent reduction in staff at the Emden yard of Rhein Stahl Nord-seewerke, the use of underemployed labour at the Toulon naval dockyard to complete methane tankers for the nearby yard of La Ciotat where there is a labour shortage, and the closure of a subsidiary building dock at Le Trait in April 1971 to permit concentration of production at the parent yard at La Ciotat. Changes of a more fundamental kind may be grouped into three categories.

1. *Standardisation and specialisation.* Following the example of the Japanese and Henry Ford, some yards have accepted that the mass production of a single type of vessel will bring down production costs. This is the solution devised by the Wearside firm of Austin and Pickersgill, one of the few profitable West European firms. They produce a medium sized cargo vessel, the SD 14, and at the beginning of 1971 had an order book of 32 such ships. In contrast the unprofitable Tyneside yard of Swan Hunter at this time was contracted to build 20 ships ranging from trawlers to supertankers, and was building them in nine different yards. AG Weser has been using a single supertanker design since 1967 and expects to retain it until 1975; the strategy is supported by the fact that the man hours needed to build the fourth ship in the series was three-quarters that required for the first. While not standardising their production to this extent, many yards are nevertheless specialists and those at the smaller end of the range avoid competition with the Japanese supertanker specialists. The 36 Dutch trawler-coaster yards, all of which are profitable, exemplify this approach. They employ 2,500 workers, export 80 per cent of their output and have an interesting 80 year old method of arriving at the price of their vessels.

Representatives of the workers negotiate a price at which they agree to build the ship, and although the price may be high, the shipowner is assured of delivery on time. Another profit making specialist is Vosper-Thornycroft, the Southampton and Portsmouth naval frigate and torpedo boat builder. Verolme at Rotterdam has become a specialist tanker and bulk carrier builder, but in this range it must compete with the Japanese and is thus unprofitable.

2. *Mergers and yard specialisation.* An important result of the amalgamation of several yards is the scale economies that are obtained. Conoship is a company formed by the merging of 14 small firms in the Netherlands. The size of the firm is such as to justify the construction of a centralised steel fabricating facility at Groningen, while there is a single design division and one materials purchasing unit. Some mergers are more comprehensive and result in the complete reorganisation of particular yards so that each yard in the group becomes a specialist builder. This strategy is an important one and was proposed by the Geddes Report which recommended the establishment of the ill-fated Upper Clyde Shipbuilders. The Dutch Winsemius Commission similarly suggested that vessels up to 40,000 tons be constructed in the Alblisserdam yards of Verolme and Van der Giessen, which were to merge, that vessels between 40,000 and 150,000 tons be built at the merged facilities of Rotterdam Dockyard and Wilton Fijenoord at Rotterdam, and that larger ships be produced by the Verolme yard at Botlek. The Howaldtswerke Deutsche Werft (HDW) consortium, the largest firm in Europe, has taken this line of action. Its Kiel yards specialise in container vessels (one third of the world's container ships are built in West Germany), one of its Hamburg yards builds

oil rigs and the other carries out repair work. Unfortunately it is still unprofitable.

3. *Diversification.* Although there are advantages to be had from specialisation, in certain sectors diversification is a viable proposition. Ship repair work is profitable, and an increasing number of yards are moving into this activity. In 1971, for example, Blohm und Voss set up a repairing facility at the entrance to the Kiel canal in combination with a salvage firm. The Norwegian Aker group is diversifying into oil rigs to take advantage of the North Sea oil and gas discoveries, while Vosper-Thornycroft are adventurously entering a Russian dominated field and plan to build hydrofoils to a Swiss design.

Government action in shipbuilding

In the majority of countries shipbuilding is now regarded either as an instrument of national economic development or as a regional planning problem. Japan holds the former view, and her government has followed a cheap money policy since 1953 when the Japan Development Bank began to subsidise interest rates above 5 per cent on loans to yards by banks. Vessels for export qualify for eight year loans on 80 per cent of the purchase price at 6 per cent interest, while loans for Japanese owners are even more favourable—80 per cent of the cost of the ship at 4 per cent interest repayable over 15 years. There is also a 15 per cent protective tariff on imported ships. Coupled with the excellent productivity record of the Japanese, this financial policy has been the basis of the country's present dominance. West European governments, with the exception of Spain and to some extent France, have not used the industry to enhance economic growth, rather it is seen as an important employer of labour which must be supported to prevent local unemployment. There are 20,000 shipyard workers in Bremen and even more in Hamburg, where it is the third employer of labour. The industry is the basis of Kiel's economy, and it is not surprising that in all these towns there is support from both the Federal and the *Land* governments. In Great Britain the major yards are in the older industrial districts and thus receive Development Area subsidies equal to 4 per cent of the cost of a ship, but these are also precisely the areas with high unemployment rates, so that any reduction in workplaces or closures will exacerbate the position. Male unemployment on Clydeside early in 1972 was 12.1 per cent, while the figures for Wearside, Tyneside and Teesside were 11.5, 10.4 and 9.8 per cent respectively. As at Kiel, the industry is the cornerstone of the regional economy in Belfast where the Harland and Wolff yard employs 9 per cent of Northern Ireland's manufacturing labour. The economic viability of these yards is thus obscured by social considerations.

During the 1960's West European governments introduced the cheap money policy for yards and for customers pioneered by the Japanese a decade earlier. Firms were aided by tax exemptions, research grants, equipment grants, protective duties, and by the mid-1960's, when profits were becoming very thin and therefore capital for rationalisation scarce, governments began to grant funds to specific firms on the verge of bankruptcy. In some cases the cash carried a proviso that mergers be effected, and it was in this way that the Scott-Lithgow group at Greenock and the Upper Clyde Shipbuilders were created in 1966 from the seven yards along the river. Between 1966 and

1970 UCS received £20 million from the government, and in February 1972 the firm was allocated £35 million to prevent total collapse and what would have amounted to civil strife in the region. Faced with redundancy and little hope of immediate work in the area, UCS workers had taken over the yard and had run it themselves as a gesture of defiance towards a government that seemed oblivious of their plight. The German HDW group at Hamburg was created at government instigation from loss making yards, although Federal support has been far less than that assigned to UCS. Other yards that have been in receipt of emergency support include Cammell Laird at Birkenhead, Verolme at Rotterdam, Burmeister and Wain at Copenhagen, the French yard at La Ciotat and even the renowned Swedish yard Gotaverken at Gothenburg. Sometimes governments take a financial shareholding in shipyards in return for support; the Northern Ireland administration has a 47.6 per cent interest in Harland and Wolff, while the Schleswig Holstein *Land* government holds 25 per cent of HDW's shares. The logical extension of this process is complete nationalisation. This has occurred in Italy with the absorption of the last private yard, CNTR, into Italcantieri, the shipbuilding subsidiary of IRI, the state industrial corporation, in 1970.

In spite of these measures shipbuilding in Western Europe is for the most part unprofitable, and the EEC and Britain are following the OECD's recommendations to improve efficiency by scaling down future financial support. The OECD estimates that governments are responsible for between 12 and 15 per cent of the value of new ships, equal to \$650-750 million in 1970, and suggests that this is too much. EEC policy is therefore to restrict aid to shipbuilding to 4 per cent in 1973 and 3 per cent in 1974, and Britain is to try to reduce its support from the present 10 per cent level to those planned by the EEC. If these policies

come to fruition, there is little doubt that there will be contraction in the industry, for there seems little likelihood of being able to catch the Japanese who, faced with rising domestic wage bills, are now building yards in countries like Taiwan and Malaysia where labour is still very cheap. The mixture of low labour cost and Japanese expertise and capital should remove the possibility of profitability from all but the specialist West European yards, for which there will always be a place. Labour costs are less of a factor in the construction of warships, dredgers, trawlers, ferry boats and container ships than in the case of tankers, and Japanese competition will be much less severe. The fact remains, however, that on economic grounds there is a strong case for running down the unprofitable sectors of Western Europe's shipbuilding capacity and retraining the workers for a profitable economic activity. On the other hand, governments may wish to retain the industry on social grounds, and additionally may desire to maintain some unprofitable yards for strategic reasons.

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The Aerospace industry in Europe

Developing and producing aircraft, guided weapons and space vehicles is an important industry in western Europe. High development costs and the need for large markets to offset these costs have led to many joint European aerospace projects.

Politically both prestige and military criteria are significant and national governments are deeply involved in the industry. It is estimated that Concorde will cost the British and French governments some £1,000 millions each to develop. Military requirements form a major component of the industries' work and here again European nations are co-operating to build aircraft which satisfy their joint needs.

Aerospace stretches the capabilities of other sectors of an economy such as chemicals in the demand for light, tough plastics; electronics for sophisticated instrumentation and the metal industries for special alloys and new materials. The complexity of the production process demands the most competent and effective techniques of managerial control.

Technological advances first made in aerospace are now applied in other fields; gas turbines for industrial uses and ships; aerodynamic techniques in the development of the Advanced Passenger Train, and carbon-fibres, which are potentially of great significance in industrial applications.

The British aerospace industry employed some 200,000 people and had an output valued at \$1584 in 1969. If Europe is to maintain an effective aerospace industry the British contribution will be important.

In the ruins of 1945, the only surviving aerospace industry in Europe was that of the United Kingdom. There had been a boom during the war years, and immediately afterwards British energies were turned to producing a whole range of new aircraft; airliners like the Comet, Viscount, Ambassador; military aircraft like the V-Bombers, Hunter fighters, and the multi-role Canberra. However the pattern remained one of relatively small, competing firms, with payrolls of up to 10,000, each producing their own designs. On the Continent recovery began in France, the Netherlands and Italy; the German aircraft industry, once immensely productive, efficient and imaginative, was shattered, and lie dormant until the mid-1950's.

In the 1950's two things began to happen: the continental industries began to rival Britain as aircraft producers; world-class designs began to emerge from European factories, like the Dutch Fokker F-27 Friendship and French Caravelle airliners, and the French Mirage and Italian Fiat G91 fighters. Towards the end of the decade European firms (in Belgium, the Netherlands, Italy and West Germany) co-operated to produce under licence and in huge numbers the American F-104G Starfighter, a fairly advanced, multi-purpose supersonic fighter. Britain lost its European domination, but remained by far the most important single producer. The development and production costs of aircraft began to rise; £10,000 would have bought a fighter

in the 1940's; the Hunter cost £100,000, while the Lightning, of the early 1960's, cost more like £500,000. The cost of materials, and skilled manpower needed to develop new aircraft rose markedly. This, combined with greater intra-European competition and competition with the United States, pointed logically towards amalgamation.

Governments responding to this new situation began to press aerospace companies to form larger groups; at times more than gentle persuasion was needed to force old-established rivals to amalgamate. In Britain, during the early 1960's, the British Aircraft Corporation and Hawker Siddeley Aviation were formed to produce aircraft and missiles. In 1967 engine production was centred on Rolls Royce when that company took over Bristol Siddeley. In France, two major airframe groups were formed—the privately-owned Dassault-Breguet company and the Government-owned group Aerospatiale. Engine production is concentrated mainly on SNECMA, with Turbomeca occupying second place. West Germany has Messerschmitt-Bolkow-Blohm, Dornier and the German half of a Dutch-German firm, VFW-Fokker, producing airframes, while engine production has been concentrated on Motoren- und Turbinen-Union (MTU). In Italy, aerospace activities are based on the aviation division of the huge FIAT complex and a number of smaller companies like Aermacchi, SIAI Marchetti and Piaggio. These national groupings are all small,

compared to the American companies, but they are amalgamations that have reached a more rational size. There are no signs of any more purely national amalgamations, but certain international mergers were discussed some years ago: amalgamations of SNECMA/Rolls Royce and Messerschmitt-Bolkow-Blohm/British Aircraft Corporation were rumoured, but have not materialised. Only one truly international company has emerged—Fokker-VFW, a straightforward merger of a Dutch firm and a German firm; no others are in sight. It did seem possible at one stage that a multi-national European engine company would result due to the recent Rolls Royce crisis, but this has not happened.

Table 1.

European aerospace companies (1969) and major US competitors

Company	Country	Employees
Hawker Siddeley	UK	47,000
Aérospatiale	France	42,000
British Aircraft Corporation	UK	36,000
Messerschmitt-Bolkow-Blohm	Germany	20,000
Dassault/Breguet	France	13,000
Westland	UK	12,200
VFW/Fokker	Netherlands/ Germany	10,900
Dornier	Germany	7,000
Shorts	UK	6,000
Fiat Aviation	Italy	6,000
Agusta	Italy	2,500
Aermacchi	Italy	1,500
McDonnell Douglas	USA	107,000
Boeing	USA	108,000
<i>Aero-Engines</i>		
Rolls Royce	UK	70,000
SNECMA	France	15,000
MTU	Germany	4,400
Pratt and Whitney	USA	45,000

International consortia

The international activities of the European aerospace industry have generally taken the form of collaboration on specific projects, often sponsored by national governments. International aerospace collaboration is rather a strange phenomenon, pursued for many different motives. Governments have seen it as a way of reducing the massive research and development costs of advanced projects: companies have tended to view it as a means of countering American competition, but whatever the motives, a large number of collaborative projects are now under way in Europe.

These are sometimes organised on a straightforward company-to-company basis, like Concorde; this project is administered by a Committee of Officials appointed by the British and French Governments, to which the companies are responsible. However, a number of important collaborative consortia have been established:

1. SEPECAT (Société européenne de la production de l'avion école de combat et appui tactique) is the Anglo-French company concerned with the Jaguar project. Jaguar is a light supersonic trainer/strike aircraft being developed jointly by the two countries under the terms of an agreement of May 1965. A Jaguar Management Committee of civil servants was appointed by the governments of the two countries. SEPECAT, the complementary industrial organ-

isation, was formed in May (1966) by Breguet Aviation and British Aircraft Corporation. It exists solely for the Jaguar programme; there is little possibility of its becoming more permanent. SEPECAT will cease to exist when the Jaguar programme comes to an end.

2. The largest European collaborative programme, taking in Britain, Italy and West Germany is for the development and construction of a Multi-Role Combat Aircraft (MRCA), or Panavia 200; Panavia is the name of a tripartite company formed to manage the programme. It is responsible to NAMMO, the Nato MRCA Management Organisation (an enlarged Committee of Officials on the lines of that supervising SEPECAT). Panavia's duties include the design, development and production of the aircraft. Its joint owners are British Aircraft Corporation, Messerschmitt-Bolkow-Blohm and Fiat, and an associate company, Avionica, deals with the advanced electronic systems of the aircraft, advising Panavia on the most suitable European suppliers for specific components. Avionica is purely advisory and has no executive function.

3. The A300B European Airbus is being developed by Aérospatiale (France), Deutsche Airbus (West Germany), Fokker-VFW (Netherlands), and Hawker Siddeley (UK), under the sponsorship of the French, German and Netherlands Governments. Aérospatiale has always had full control over this project, being the design leader, and established a co-ordinating company, known as Airbus Industrie; this is responsible for the design, development, production and marketing of the airbus. Like Panavia and SEPECAT, this is an *ad hoc* arrangement unlikely to outlive the programme it administers.

Structurally, therefore, the European aerospace industry is something of a mixture; larger national companies have replaced the multitude of independent competing firms, and these are increasingly involved in collaborative projects. One truly international company, Fokker-VFW, has been formed but there are as yet no signs of others. It would be an exaggeration to call the European aerospace industry integrated on a continental basis; but the movements are in that direction as companies are forced to pool resources and collaborate on projects. The initial optimism surrounding international cooperation has now largely gone, being replaced by a more realistic attitude that recognises the many problems involved. But vast collaborative projects like Concorde, A300B Airbus and the Panavia 200 are moving ahead.

Markets

1. Europe

In both civil and military markets the European home industry has lost ground to American competition since the war. (Table 2 gives some idea of the extent of US domination at present.)

The picture revealed is not a particularly encouraging one. Of the major types of airliner—long, medium, and short-haul jets, and short-haul turboprops—Europe has designs at least equal to those of the US, yet the market is completely dominated by US firms. In Europe the British BAC VC10 lost the battle for markets to the Douglas DC8 and Boeing 707; the Trident lost to the Boeing 727, and the One-Eleven and Caravelle lost to the Boeing 737 and Douglas DC9. Europe generates a tremendous demand for air transport, one which a European aerospace industry might be expected to provide for, yet this has manifestly not been the case. There are many lessons to be drawn from this; perhaps the primary lesson has been that sheer inventiveness, design flair and production integrity are not sufficient for an advanced-technology, capital-intensive industry like aerospace. The sheer volume of resources that can be poured into production count for more. Airliners need to be adaptable, and to suit the market; they should be capable

A WIDE RANGE OF AIRCRAFT ARE PRODUCED IN EUROPE RANGING FROM SUPERSONIC TRANSPORT TO LIGHT, UTILITY AIRCRAFT

A) LIST OF CIVIL AND MILITARY AIRCRAFT PRODUCED IN EUROPE

a) Civil Aircraft

aircraft	country	engines (no)	seats	in service	no sold
BAC One-Eleven	UK	Rolls Royce Spey (2)	79-119	1965	203
Hawker Siddeley Trident	UK	Rolls Royce Spey (3)	up to 171	1964	88
Hawker Siddeley 125	UK	Rolls Royce Viper (2)	7-12	1964	250 +
Hawker Siddeley 748	UK	Rolls Royce Dart (2)	45-60	1961	250 +
BAC/Aerospatiale Concorde	UK/F	Rolls Royce/ Snecma Olympus (4)	128	1975 ?	74 (options)
Short Skyvan	UK	Garrett (US) (2)	20	1966	50 +
Fokker-VFW F 27	N/G	Rolls Royce Dart (2)	48-56	1958	600 +
Fokker-VFW F 28	N/G/UK	Rolls Royce Spey (2)	50-79	1969	35 +
Fokker-VFW 614	G/N	Rolls Royce M45H (2)	44	1973	24
Dassault Mercure	F	Pratt & Whitney (US) JT8D-15 (2)	155	1973	10 (options)
Dassault Fan Jet Falcon	F	General Electric (US) CF700 (2)	10	1966	150 +
Airbus Industrie A300B	F/G/N	General Electric (US) CF-6-50A (2)	250-306	1974	39 (options)

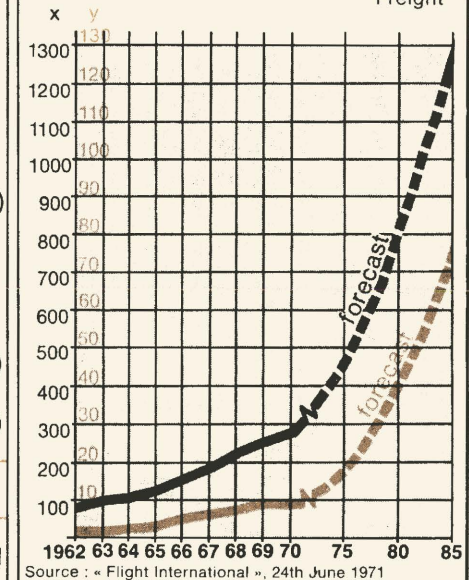
b) Military Aircraft

aircraft	country	engines (no)	role	in service	no sold
SEPECAT Jaguar	UK/F	Rolls Royce/Turbomeca Adour (2)	strike/trainer	1971	400 +
Panavia 200	UK/I/G	Rolls Royce/MTU RB.199 (2)	multi-role / combat aircraft	1977	800 +
BAC 167 Strikemaster	UK	Rolls Royce Viper (2)	basic trainer/attack	1967	80
Hawker Siddeley Nimrod	UK	Rolls Royce Spey (4)	maritime patrol	1969	38
Hawker Siddeley Harrier	UK	Rolls Royce Peegasus (1)	VTOL fighter	1969	200 +
Hawker Siddeley Buccaneer	UK	Rolls Royce Spey (2)	attack	1965	166
Westland Sea King	UK	General Electric (US) T64 (2)	maritime helicopter	1970	86
Aerospatiale/ Westland Puma	F/UK	Rolls Royce/Turbomeca	medium helicopter	1969	250 +
Westland/ Aerospatiale Lynx	UK/F	Rolls Royce	medium	1974	200 +
Westland/Aerospatiale Gazelle	F/UK	Snecma/Rolls Royce	light helicopter	1972	450 +
Breguet Br1150 Atlantique	F/G/N	Rolls Royce Tyne (2)	maritime patrol	1965	81
Dassault/ Mirage (all versions)	F	Snecma Atar 9 (2)	fighter	1958	2000 +
Fiat G91Y	I	General Electric J85 (US) (2)	fighter	1969	55 +
Macchi MB, 326	I	Rolls Royce Viper (1)	strike/trainer	1962	300 +

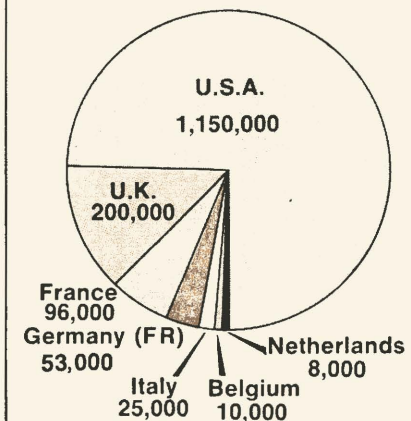
F=France G=Germany N=Netherlands I=Italy UK=United Kingdom

B) THE EXPLOSION IN AIR TRAVEL

— Passenger revenue, ton-miles
— Freight and mail revenue, ton-miles
 $x = \text{Revenue in ton-miles} \times 1000 \text{ millions} - \text{Passengers}$
 $y = \text{Revenue in ton-miles} \times 1000 \text{ millions} - \text{Freight}$



C) EMPLOYMENT IN AEROSPACE INDUSTRIES FOR UNITED STATES AND WESTERN EUROPE (1969)



of evolution to meet changing demand. European aircraft like the Trident, Caravelle, and One-Eleven lost sales because they could not be "stretched" sufficiently in payload and range. European airlines needing large-capacity short-haul aircraft, bought from the United States.

Smaller types of European aeroplane—notably the Dutch Fokker F-27 Friendship, a twin-turboprop 45-55 seater—have done well, and so, to some extent, has the European aero-engine industry; in effect Rolls Royce. In addition to providing engines for most indigenous European types, they sold Conway turbofans for use in many of the earlier Douglas DC8's and Boeing 707's and now RB 211's for the Lockheed Tristar; this is not however the happiest of stories.

For the future the Americans are bound to dominate the long and medium-haul markets, simply because they are the only suppliers; the Boeing 747 'jumbo' is in service with every major European airline. Among the slightly smaller trijets, the McDonnell Douglas DC10 has been ordered by Lufthansa, Sabena, KLM, UTA (France) and Alitalia among the Common Market airlines; the recently-rerieved Lockheed TriStar can be expected to sell to BEA, BOAC and perhaps British Caledonian due to its British Rolls Royce RB211 engines. It is at the short-haul end of the 'jumbo' market that Europe is strong. The A300B Airbus, being produced by Aerospatiale (France), Hawker Siddeley (UK), Fokker-VFW (Netherlands) and Deutsche Airbus (Germany) is a 250-306 seat

The next twelve months should show whether Concorde will be any more than an astronomically expensive research programme, or a commercially viable aeroplane. Its failure would be a serious blow to European aerospace technology; its success would put it in a strong position for many years to come.

Among military aircraft Europe has done a little better; the only American type to sell in Europe in large numbers has been the McDonnell Douglas F-4 Phantom, in service in the United Kingdom and Germany. The British version (with Rolls Royce Spey engines) is about one-half British by value. The US-designed F-104G Starfighter was produced in large numbers by a European consortium in the early 1960's, and now forms the mainstay of the Italian, German, Belgian and Netherlands air forces, but indigenous types like the French Mirage, British Lightning and Harrier, and Italian Fiat G91 are also in large-scale service.

The next generation of combat aircraft should be predominantly European; Panavia 200, being developed by Britain, West Germany and Italy, should equip those countries' air forces for many years to come; France is developing a similar aircraft, the Mirage G8, which has already flown. Other European types in production to supply the home air forces in the coming years include the Anglo-French Jaguar supersonic strike/trainer, and the British Hawker Siddeley Harrier, unique as the world's only operational VTOL aircraft. Europe should be self-sufficient in combat aircraft in the future.

Table 2
Major European airlines: main types of US and European equipment in service or on order, 1970

	US EQUIPMENT							EUROPEAN EQUIPMENT						
	Boeing			Douglas				VC10	BAC 111	Tri dent	Cara- velle	F27	F28	Con- corde
707	727	737	747	DC8	DC9	DC10								
BOAC	27	—	—	12	—	—	—	31	—	—	—	—	—	8
BEA	—	—	—	—	—	—	—	—	18	65	—	—	—	—
British Caledonian	4	—	—	—	—	—	—	4	20	—	—	—	—	—
Air France	38	17	8	—	—	—	—	—	—	—	46	2	—	8
Air Inter (France)	—	—	—	—	—	—	—	—	—	—	9	10	—	—
UTA (France)	—	—	—	—	11	—	4	—	—	—	2	—	—	—
KLM	—	—	—	7	30	15	6	—	—	—	—	—	2	—
Lufthansa	22	27	26	6	—	—	4	—	—	—	—	—	—	3
Sabena	7	5	—	2	—	—	2	—	—	—	10	—	—	2
Iberia	3	—	—	—	12	24	—	—	—	—	19	8	3	—
Aer Lingus	4	—	8	2	—	—	—	—	4	—	—	7	—	—
Alitalia	—	—	—	5	25	36	4	—	—	—	21	—	—	—

twin engined short-haul transport. Due to fly in 1972, it has not yet attracted any firm orders, but 39 'letters of intent' to buy have been lodged, mainly by Air France, Lufthansa and European charter airlines. Among smaller aircraft two products of the Dutch-German firm Fokker-VFW, the F28 55-79 seater and the 614 44-seater should sell well in the future. An outsider is the Dassault-Breguet Mercure, optimised for short-haul operation.

Then there is Concorde; this immensely expensive and advanced Anglo-French supersonic transport is still awaiting a decision to move ahead into full production. Seventy-four delivery positions have been reserved, but this is very different from a firm order. The aircraft has satisfied its technical specification, and it remains to be seen whether it can overcome the formidable obstacles of cost and noise.

Among guided weapons, Europe is already largely self-sufficient, and advanced types like the French Exocet (ship-to-ship), British Rapier (ground-to-air) and Anglo-French Martel are in production. The UK has found it necessary to buy her Polaris submarine-launched ballistic missiles from the United States, but France is building her own.

Demand for space vehicles is strictly limited. The only national space programme of any size in Europe—France's—is minute by US and Russian standards, but the launch vehicles, satellites and instrumentation are in the main French-built. Other national programmes either use national equipments or co-operate with the United States; the British programme is now exclusively one of satellite technology, and since the cancellation of the Black Arrow launcher programme, US launch vehicles will be used.

The European multi-national space organisations, ESRO (European Space Research Organisation) carries out specific space and upper-atmosphere research using mainly European equipment. Its members are the United Kingdom, France, Switzerland, Belgium, Netherlands, Italy, Denmark, West Germany and Spain. ELDO, the European Space Vehicle Launcher Development Organisation, has produced a medium-weight launch rocket, Europa 1, at a cost of over \$600 million; it has no real use, and is too small to launch communications satellites, but a more advanced version, Europa 2, should be capable of launching "Symphonie", the Franco-German communications satellite.

2. World

The US domestic market is, of course, predominantly supplied by US manufacturers. A small number of European airliners have been sold in the United States, mainly Caravelles and BAC One-Elevens; European business jets have also sold well—mainly the Hawker Siddeley 125 and the Dassault-Breguet Fan Jet Falcon—and the Fokker F-27 was produced in large numbers under licence in the US by Fairchild-Hiller.

The only European military aircraft to meet with any success in the US market since the British Canberra of the 1950's is the Hawker Siddeley Harrier VTOL strike fighter; this has been sold in large numbers to the US Marines. There has been speculation that the Harrier will be put into production in the US by McDonnell Douglas, but given the current American economic situation, this appears unlikely.

Europe's exports to America's space programme have mainly been in the form of qualified and valuable engineers and scientists. This hardly represents a benefit to the European aerospace industry. Some hardware has been sold to NASA; British Aircraft Corporation supervised the building (in Europe) of one of the Intelsat communications satellites for the world telecommunication satellite system. In the future, there may be some direct US-European co-operation on the post-Apollo programme (like the space shuttle) but this is speculative at present.

The rest of the world has been rather more receptive to European aerospace products. Airliners like the One-Eleven, Caravelle, Fokker F-27 and F-28, Hawker Siddeley 748 and Trident have sold abroad, some in very large numbers. Future products like the VFW-Fokker 614 and the Airbus A300B will also, no doubt, meet with some success.

Of military aircraft, Europe produces one of the world's best selling jet fighters, the French Mirage; since the late 1950's some 2,000 Mirages of all types have been produced, and the design should continue to sell for some years. The British Aircraft Corporation Lightning, a specialised, high-performance, high-cost interceptor, has not done so well, but has made some sales in the Middle East, particularly to Saudi Arabia as part of a highly sophisticated air defence system. There is also a strong demand from less developed countries for a simple, low-cost trainer-cum-attack aircraft, and European contenders for this market include the BAC 145/167 Strikemaster and Italy's Aermacchi MB326.

It seems likely that the world's air forces will continue to buy advanced combat aircraft in the future, and Europe's

offerings—the Panavia 200, French Mirage G8, and Hawker Siddeley Harrier—can all be expected to take a share of the market.

Prospects

Prediction is never an easy task, especially when it concerns a high-risk industry like aerospace. The past twenty years have seen many predictions proved totally wrong, often at very great cost.

It is likely that the demand for air transport will continue to grow; Boeing's optimistic estimate is shown on the accompanying graph. Demand could grow by less (or by more) than Boeing think it will, and current indications are that it will grow less. This will be bad news for aerospace manufacturers (and governments) who have many thousands of millions of pounds invested in a whole new generation of aeroplanes, ranging from the Boeing 747 and the Concorde to the 45-seat VFW 614 Europe's main ventures—Concorde and the A300B airbus—are both, to some extent, gambles; sales estimates for Concorde vary from a mere 14 to over 300; the A300B airbus (due to fly within a year), has not yet attracted a firm order. Each could fail, or each could dominate its share of the airliner market for many years to come.

The bread-and-butter products, like the BAC One-Eleven, HS748, F-27 and F-28 should continue to sell, and new ventures like the Dassault Mercure, and, further in the future, quiet short-take-off and landing ventures could be successful.

In the military sphere, two national projects—the French Mirage and the British Harrier VTOL fighter—have good prospects. The Panavia 200 is currently beset by political difficulties; if it survives, it may sell outside the participating countries.

Space and guided weapons should also provide a market, but a limited one; simple, robust guided weapons continue to sell. The Intelsat world telecommunications satellite system will need components, many of which Europe could provide.

In terms of resourcefulness and inventiveness, the European aerospace industry is very well endowed; it has a large home market which, shared sensibly on a continent-wide basis, could provide a firm basis for much valuable export trade. Like so much of modern advanced technology, its future is bound up with political developments; given a stable political environment, adequate investment and realistic targets, it should win an increasing share of the world's market.

Further reading

C. Layton, *European Advanced Technology*
Costello + Hughes, *The Battle for Concorde*
Interavia
Flight International

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