

COMMISSION OF THE EUROPEAN COMMUNITIES

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"EUROPE AGAINST CANCER" PROGRAMME :
PROPOSAL FOR A PLAN OF ACTION 1987-1989

INCLUDING A DRAFT COUNCIL DECISION CONCERNING
THE INFORMATION OF THE PUBLIC
AND THE TRAINING OF MEMBERS OF THE HEALTH PROFESSIONS

(submitted by the Commission to the Council)

COMMISSION OF THE EUROPEAN COMMUNITIES

CORRIGENDUM

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PROPOSAL FOR A PLAN OF ACTION 1987-1989

including a draft Council Decision concerning the information
of the public and the training of members of the
health professions

(submitted by the Commission to the Council)

This corrigendum concerns page 21 which has been
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PROPOSAL FOR A PLAN OF ACTION 1987-1989

including a draft Council Decision concerning the information
of the public and the training of members of the
health professions

(submitted by the Commission to the Council)

This corrigendum concerns Table 3 which has
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PRELIMINARY REMARKS

In June 1985, in Milan, and in December 1985, in Luxembourg, the Heads of State and of Government of the twelve Member States of the European Community stressed the importance of launching a European programme in the fight against cancer, so that the construction of Europe could make the necessary contribution to combatting this scourge, but also take on a new dimension, closer to the concerns of citizens.

In order to implement that conclusion of the European Council and prepare a proposal for a "Europe against cancer" programme, a committee of leading cancer experts (1) was set up in January 1986 under the auspices of the European Commission. The following proposals cover the first three years of implementation of the programme. They are based to a large extent on the conclusions of that committee, whose readiness and commitment, and the high calibre of its work should be stressed.

In addition, this work has benefited significantly by the studies and research carried out or underway in the World Health Organization, and in its International Agency for Research on Cancer.

Four areas are covered by this proposal for a plan of action for the period 1987-89 :

- cancer prevention : On 7 July 1986, a resolution was adopted by the Council and the representatives of the Governments of the Member States meeting within Council which lays down the main lines for the preventive part of the European programme of fight against cancer (OJ C 184, 23.7.1986 p. 19). The present communication completes this programme by identifying about thirty Community actions.
- information and health education of the general population and training of health care workers in cancer, for which a proposed Council decision is attached to the present communication.
- cancer research : In November 1986, the European Commission forwarded to the Council of Ministers of the European Communities, a proposed regulation (COM/86/549 final, 29.10.1986) on a fourth programme for coordination in medical research (1987-1989). The present communication clarifies and details the cancer research dimension.

Some of the actions which are foreseen come directly under the European Commission's management powers. They will be carried out as such in that manner, beginning in 1987 for the majority of them. This communication also contains many proposed actions which the European Commission intends to send, in 1987 to 1989 to the European Parliament, for consultation, and the Council of Ministers of the European Communities, for approval. They are therefore liable to be amended at a later stage.

(1) The committee consists of the following figures : Prof. C.de Duve, Substitute, Prof. Boon (Belgium), Prof. C.Schmidt (Federal Republic of Germany), Prof. E.Grundmann (Federal Republic of Germany), Dr O.Moeller Jensen (Denmark), Prof. J.Estape (Spain), Prof. M.Tubiana (France), Dr S.Vassilaros (Greece), Dr M.Moriarty (Ireland), Prof. U.Veronesi (Italy), Prof. M.Dicato (Luxembourg), Dr R.Kroes (Netherlands), Prof. J.Conde (Portugal) and Prof. N.Bleehen (United Kingdom). From January 1987 Sweden will be represented by Prof. J. Einhorn, as an observer.

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(2) These proposed actions will be prepared by the European Commission and submitted from 1987 to 1989 to the European Parliament, for consultation, and to the Council of Ministers of the European Communities, for adoption.

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GENERAL INTRODUCTION

Going back probably to the origins of man (the Kanam jawbone, which is some 500,000 years old, already shows signs of the disease (4)), varied in its manifestations (several hundred different types are observed today), extremely widespread in our developed societies (one European in four today has been, is being or will be affected) cancer is still considered as a mysterious disease characterized by the disorganization of certain cells and their anarchical proliferation, for reasons about which more and more is being learned but that have not so far been totally elucidated. Moreover, if the increase observed in recent years were to continue, by the year 2000 one European in three would be stricken by cancer at some time in his life.

Although worrying, the picture is not, however, altogether sombre. Clearly, the rise in the number of cancer cases can be accounted for by the increase in the average lifespan, since the incidence of cancer increases rapidly with age. Moreover, cancer is only the second largest cause of death in man, after cardiovascular diseases.

All the same, like the infectious diseases in previous centuries, cancers are the most feared form of illness today, probably because treatment is still too often at the cost of surgical mutilation or undesirable side effects, and probably also because, until the recent invention of effective pain-suppressant drugs, cancer frequently caused prolonged and unbearable suffering.

Nevertheless, we no longer have to accept that cancer is a fatal disease. It is a fact that the frequency of cancer should be reduced by prevention, and treatment improved through therapeutic research. The current state of our resources renders long-term survival, if not complete cure, possible in nearly half the cases, whereas scarcely one-quarter of patients were cured in 1950 (5). Above all, cancer is often avoidable, as can be seen from the considerable successes registered in certain countries in combating three common types of cancer.

The spectacular reduction in the number of stomach cancers in the developed countries can thus probably be ascribed to more wholesome food, free from microbial proliferation (thanks to refrigerators and probably also thanks to antioxidant food additives). The fall in the frequency of cervical cancer, a disease that is increasingly thought to be sexually transmitted can, for its part, probably be attributed to more regular gynaecological screening and improved standards of hygiene in both sexes. Lastly, in countries such as the United States and the United Kingdom, a drop in the frequency of lung cancer is being observed today, such countries having begun anti-smoking campaigns earlier than others.

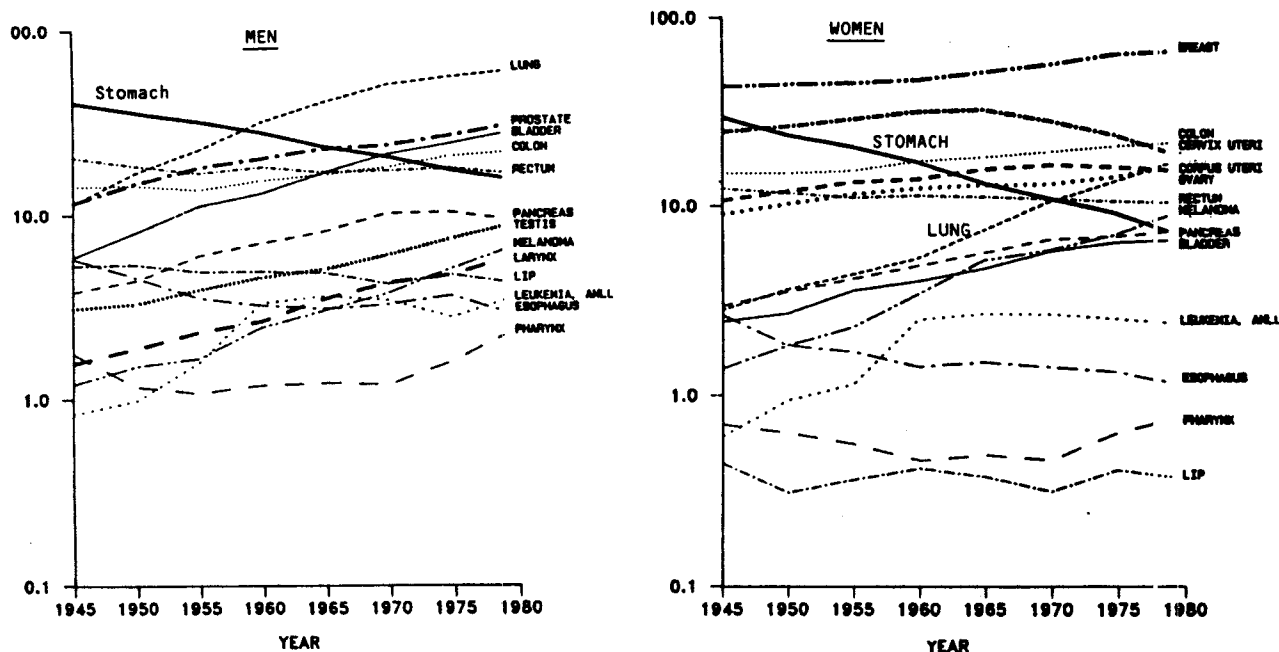
Through better prevention and through more effective treatment, improved by research, Europeans can in future hope to achieve a further big reduction in the death rate due to cancer and the number of persons afflicted. The

(4) National museum of natural history "Origine et l'évolution de l'homme" Paris 1984

(5) M. Tubiana "Le Cancer", Presses Universitaires de France, Paris 1985

struggle against cancer concerns everyone at all levels. For its part, European agriculture and industry can harmonize its regulations and techniques so that the day-to-day environment in which Europeans live is improved and rid of cancer-inducing factors. As regards European research and technology, it can boost the effectiveness of private and public research efforts through a more efficient coordination of its human and financial resources.

TRENDS IN THE NUMBER OF NEW CASES OF CANCER IN DENMARK 1943 - 1980
(age-standardized, per 100,000 inhabitants)



Source = Ole Moeller Jensen et Al. "Cancer Registration in Denmark" - National Institute Monograph n° 65 - p. 245 - 251

Note : Set up in 1942, the Danish cancer register is the oldest of its kind in Europe. It can be used to monitor long-term trends in the number of cancer cases.

CHAPTER 1 :

CANCER PREVENTION
(including early detection)

It is now a very long time since shrewd observers first noted the link between the incidence of certain types of cancer and the lifestyle and working conditions of those affected. The most perspicacious of these was undoubtedly the English doctor, Percival Pott. As early as 1775 he drew the medical profession's attention to the probable role played by soot in cancer of the scrotum, a disease frequently suffered by factory chimney-sweeps. His observation was to be confirmed two centuries later when, in 1915, the Japanese doctors Yamigiwa and Ichikawa induced malignant tumours in rabbit ears daubed regularly with tar.

One of the great advances in 20th-century medicine has been to establish the effect of life styles, working conditions and the environment on the incidence of cancer. Epidemiological research has played a decisive part in this area. Thus, studies carried out among American religious sects which forbid tobacco and alcohol (the Mormons and the Seventh Day Adventists) have demonstrated that the frequency of cancer as a whole among these people is half what it is in other Americans of the same age, sex and occupations, not bound by the same prohibitions. Other studies performed among migrant populations have also led to significant conclusions. For example, the frequency of stomach cancer, which is very common in Japan, has been found to decrease over the 15 years following the emigration of Japanese to the United States. The same Japanese, however, then become vulnerable to cancer of the colon or rectum, as are the Americans themselves. These geographical differences in the frequency of different types of cancer and the varying degrees of vulnerability according to lifestyle have suggested that in the vast majority of cases, cancer in human beings is caused by external factors.

Several studies have attempted to quantify the relative importance of these various risk factors. The conclusions of the various authors, taken altogether, are reasonably close, one to another. For example, in their 1981 report on the causes of cancer in the United States, the British epidemiologists Richard Doll and Richard Peto (6), world authorities on the subject, concluded that over three-quarters of the number of deaths caused by cancer are linked with external factors (see Table 1). In certain cases, such as smoking, their conclusions are baldly unambiguous. As far as other factors such as eating habits are concerned, much uncertainty remains and, therefore, further research is needed. These particular findings are, of course, based on the United States and their value is only indicative as far as the European countries are concerned. Nevertheless, they do provide a first approximation of the situation, except perhaps in the case of alcohol, which plays a far more significant role in countries such as France where it is implicated in over 10% of all deaths from cancer.

(6) R.Doll and R.Peto, "The Causes of Cancer", Oxford University Press, Oxford, New York, 1981.

It is outstandingly clear from the points made above that cancer can often be avoided if both society and the individual are prepared to adapt their legislation and behaviour to derive the greatest possible benefit from existing knowledge of cancer prevention. In the view of European cancer specialists, between now and the year 2000 the European countries could join forces to reduce cancer mortality by 15 %.

Table 1 : Proportion of deaths from cancer attributable to different factors. The case of the United States (Source : R. Doll and R. Peto)

Factor or category of factors	Percentage of all deaths caused by cancer	
	Best estimate	Variation in estimates
Tobacco	30	25 - 40
Alcohol	3	2 - 4
Eating habits	35	10 - 70
Food additives	1	-5 - 2
Sexual and reproductive habits	7	1 - 13
Occupation	4	2 - 8
Pollution	2	1 - 5
Industrial products	1	1 - 2
Medicine and medical processes	1	0.5 - 3
Geophysical factors	3	2 - 4
Infections	10 ?	1 - ?

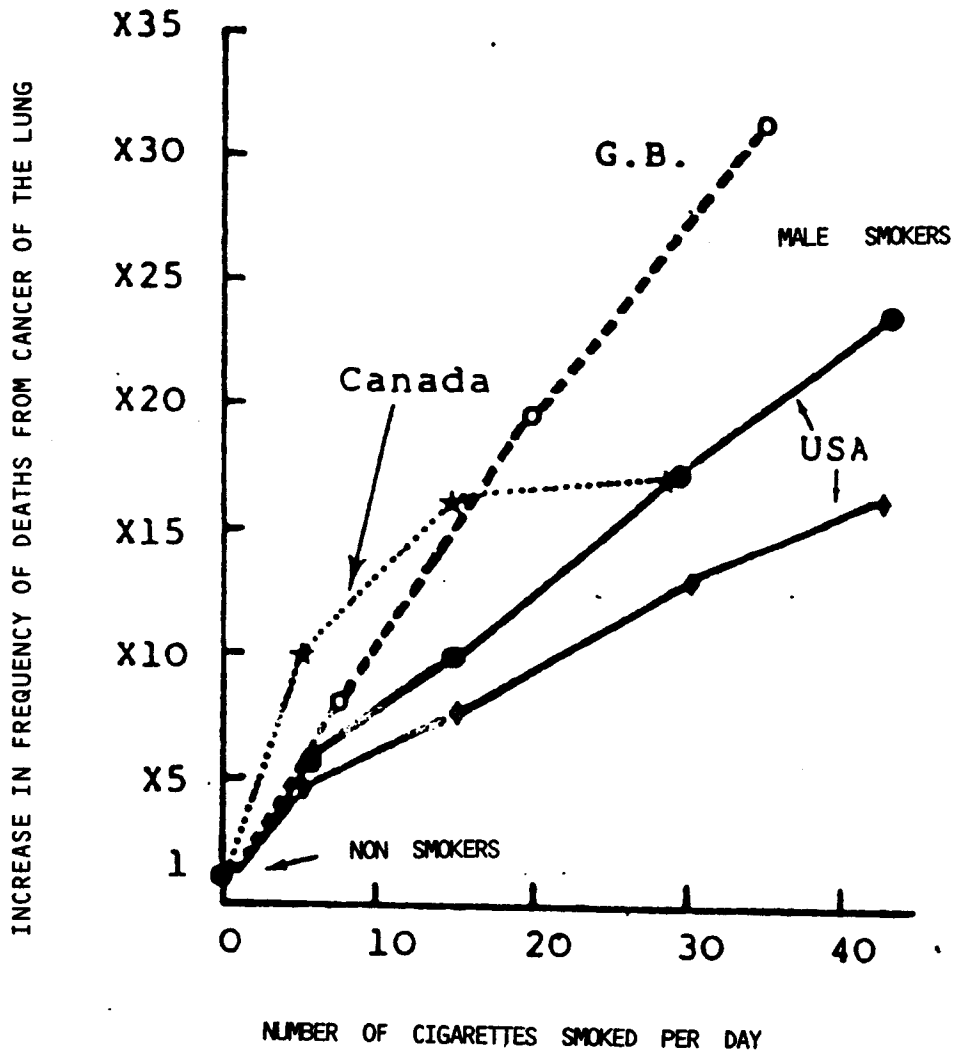
I. CAMPAIGN AGAINST TOBACCO

I.1. TOBACCO AND CANCER

It was not until 1950, when the British doctors R.Doll and A.B.Hill published their findings (7), that a link began to be clearly established between heavy smoking and lung cancer. Since then over 40 carcinogenic substances have been identified in tobacco smoke and numerous studies of patients suffering from lung cancer have shown a link with smoking in at least 90% of cases. The results of these epidemiological studies have been confirmed and consolidated by regular follow up over many years of the health status of hundreds of thousands of people, all of whom were initially in good health. It was thus discovered that the frequency of cancer of the bronchi was proportional to the number of cigarettes smoked per day. It is 20 times greater, for example, in those who smoke 20 cigarettes than in those who smoke only one (8). Furthermore cancer is also more frequent in all tissues entering into contact with tobacco smoke : the lips, mouth, tongue, larynx, pharynx, oesophagus, pancreas and lungs. The same also applies to the kidneys and bladder because smoke residues pass into the blood and are eliminated in urine.

(7) R.Doll and A.B.Hill, Smoking and Carcinoma of the Lung, British Medical Journal, 2, 739-748, 1950.

(8) International Agency for Research on Cancer Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans : Tobacco Smoking. Volume 38, Lyon, France, 1986.



- Relationship between the frequency of lung cancer mortality and the number of cigarettes smoked by day in different prospective studies.

Source : M. Tubiana, "Le Cancer", Presse Universitaire de France, Paris, 1985

On the other hand, when a smoker gives up smoking, his excess mortality due to lung cancer falls gradually over ten to fifteen years, after which his life expectancy is again equal to that of a non-smoker (9). Furthermore, the curves of the trend of the number of lung cancers and of tobacco consumption are parallel but twenty to thirty years apart. This difference corresponds to the "induction period" for lung cancer.

Attention has also been focused in recent years on the effects on health of the involuntary inhaling of tobacco smoke, or "passive smoking". Clear trends are now emerging which show that smoking damages not only the smoker's health but also that of people who, like it or not, live or work in an atmosphere filled with tobacco smoke. Thus, a year ago, the Journal of the American Medical Association (May 1985 issue) noted fourteen epidemiological studies on this theme in the United States, Japan, Federal Republic of Germany, Greece and other countries. Thirteen of them conclude that non-smokers run a far greater risk of lung cancer if they are exposed to cigarette smoke at home or at work. In an oral communication at the International Cancer Congress, in Budapest in 1986, Sir Richard Doll even went so far as to estimate that between a quarter and a third of all lung cancer in non-smokers were caused by passive smoking.

So there is no longer any doubt that smoking is by far the most widespread carcinogenic agent in our environment. Therefore, in the unanimous view of oncologists throughout the world, nothing would more effectively reduce cancer deaths in Europe than cutting tobacco consumption. Furthermore, such an action would contribute considerably to a reduction in the incidence of cardio-vascular diseases.

I.2. ACTIONS PLANNED FOR 1987-89

The fight against smoking will be a long-term affair, perhaps lasting a generation, as it would be unrealistic to think that all smokers could be persuaded to give up their habit in the immediate future. But the European Community does have some trump cards. Judicious use of the specific powers in relation to the Internal Market, to the Common Agricultural Policy, or to the protection of consumers, will reinforce national, public or private actions in the fight against tobacco. For clarity, the Community actions foreseen from 1987 to 1989 have been regrouped according to the main fields of competence of the European Community. Therefore, these actions are not placed in any order of priority.

(9) R.Roemer, "L'action législative contre l'épidémie mondiale de tabagisme", WHO, Geneva, 1983.

A. The internal market and tobacco

The Member States of the European Community are committed to finally setting up a true common market by the end of 1992. In particular this will involve bringing their taxation systems into line, so that they can eliminate the frontier checks which are still necessary today owing to the wide range of taxation systems in Europe. Manufactured tobacco is a textbook example of this, as shown in table 2, since the tax on an ordinary packet of twenty cigarettes varies from 0.26 ECU in Greece to 2.76 ECU in Denmark.

The high level of taxation in the latter country, which is a record for Europe, if not the world, is based on the intrinsic nature of the Danish taxation system. The Danish health and social-security systems are financed not by deducting social-security contributions from wages, but mainly by direct or indirect taxation.

Table 2 : Retail prices and tax on the most common packets of 20 cigarettes in each country in April 1986 (ECU)

Country	:	DK	IRL	UK	D	NL	B
Retail price	:	3.16	2.54	2.35	1.77	1.36	1.24
Tax	:	2.76	1.88	1.76	1.30	0.97	0.87
Country	:	IT	L	F	P	E	GR
Retail price	:	1.02	0.97	0.68	0.73	0.73	0.43
Tax	:	0.73	0.65	0.51	0.50	0.38	0.26

In view of public health requirements, steps should obviously be taken to ensure that the harmonization of excise duties and taxes on tobacco does not lead to a drop in prices in countries with the heaviest tax burden. This suggests that taxation should therefore be aligned with the higher rates. On the basis of this principle, account should nevertheless be taken of the wide disparity of the starting situations - a factor of ten between the Greek and Danish rates - and, accordingly, to make very gradual changes in the run up to 1992 to enable all the parties concerned to adapt, by setting a sufficiently wide harmonization bracket, without ruling out the possibility of temporary exception clauses.

Proposed action 1 : Upwards alignment of taxation on tobacco manufactured in the European Community. By 1 April 1987, the Commission of the European Communities will send the Council proposals for directives for adoption by the end of 1987, concerning the common brackets to be adopted for the main excise duties and value added tax, including those relating to manufactured tobacco.

These proposals dealing with approximation of fiscal measures on manufactured tobacco could lead to a general reduction in tobacco consumption and, as a consequence, to an improvement in Europeans' well-being and health. In this respect, the European Commission is inviting the Member States to begin the necessary fiscal changes beginning from 1987.

In most European countries, these fiscal measures would lead to an increase, sometimes very substantial, in tax revenue. Indeed, experience has shown that demand for cigarettes falls slightly when prices rise. Several studies carried out in the United Kingdom and other European countries have demonstrated that a given percentage increase in price (eg. 10 %) is followed by a reduction by half this percentage in tobacco consumption (5 % reduction in this case). This ratio of 0.5 between the variation in the price and the consumption has been observed for small price increases.

Proposed action 2 : Financing of preventive actions at national level by the use of increased fiscal measures on tobacco. In 1987, the European Commission intends to submit to Council proposals aimed at improving the present situation as concerns the detection and early diagnosis of certain cancers (see Chap.IV). It is evident that in the majority of countries, the financing of these programmes will be facilitated by the increase in taxes which will result from the upwards alignment of taxation on tobacco manufactured in the European Community.

This upwards alignment of taxation will result in other respects in an increase in the retail price of manufactured tobacco. It is evident that this increase should not be taken into account in wage negotiations. In order to make the effects of these tax changes more clear to the public and to the social partners, it is appropriate to publish the cost of living indices without manufactured tobacco. These indices could therefore be made reference to, when Member States are carrying out wage negotiations.

Action 3 : Publication of indices excluding tobacco by the Statistical Office of the European Communities. Starting in 1987, the Statistical Office of the European Communities will publish regularly, for each of the twelve Member States, a price index excluding manufactured tobacco.

Of course, these price increases in manufactured tobacco are only one of several elements which have to be used in the fight against tobacco which is the most widely spread carcinogenic substance with which we are faced in our everyday surroundings.

Proposed action 4 : Harmonization of cigarette labelling in the European Community. Before the end of 1988 the Commission will be submitting proposals concerning the labelling of cigarettes and other products derived from tobacco in order that a health warning and exact details of the composition of the contents will appear on every package.

In this respect, it is now an established fact that the lower the tar content of the tobacco smoked, the less the risk of lung cancer to the smoker. To encourage smokers to change to low-tar brands, the introduction of a tax proportional to tar content has been proposed at times. Such an approach seems much more difficult to put into practice than purely and simply prohibiting certain categories of manufactured tobacco and derived products.

Proposed action 5 : Prohibition of cigarettes with a high tar content. Before the end of 1987 the European Commission will submit a proposal to the Council for a directive to prohibit cigarettes with a tar content above a certain level in all Member States.

In order to permit industry - and smokers - to adapt to such a measure, these values will have to be well chosen. By way of illustration, the maximum values could be 15 mg per cigarette in 1989 and 12 mg in 1992. It is evident that some Member States of the European Communities may wish to go both further and more quickly with such measures. In addition, for this action and the previous one to be fully effective, it will also be advisable to harmonize the methods of measurement for these substances.

Proposed action 6 : Harmonization of the standards for the components of tobacco smoke. In 1987 the Commission will have comparative tests carried out on the different standards used for determining the composition of cigarette smoke, with a view to proposing the establishment of a common standard to the Council in 1988.

Furthermore, artificial incitements to smoke which still exist by tradition here and there should be done away with quickly, whether they concern the distribution of free or cheap tobacco to young people serving in the armed forces or the sales of duty-free tobacco at ports and airports. If the former type of prohibition is an affair for the Member States, the latter falls directly within the competence of the European Community. There is, incidentally, already a prohibition of this kind in force in relation to travel within the Benelux Countries.

Proposed action 7 : Prohibition of tax-free sales of tobacco in the European Community. Before the end of 1988, the European Commission will transmit to the Council a proposal for a directive to prohibit tax-free sales of tobacco in the European Community.

New products such as chewing tobacco have recently been placed on the market, notably in the United States. By their presentation and publicity, these products often have great attraction for adolescents and children. Some of these contain a high level of nicotine. Their use therefore has every chance of setting up a dependence on nicotine and accordingly on tobacco. Some countries, such as the United Kingdom, have adopted measures to protect against these new products. Thus, in July 1986 in the Protection of Children (Tobacco) Act, the sale of tobacco and all derived products to children under 16 is forbidden irrespective of the person to whom the products are intended. Ireland has totally banned certain chewing tobaccos, such as "Skoal Bandits" which originates from the United States.

Proposed action 8 : Protection of children from tobacco sales. In 1987-88 the Commission of the European Communities will be transmitting proposals to the Council and the European Parliament aimed at prohibiting the sale of tobacco and derived products to children.

B. Agriculture and tobacco

The situation as regards the tobacco sector in the European Community can be summed up by the following economic data. There are, at present, just over 230,000 producers based mainly in the least favoured regions, where unemployment is highest. Downstream, some 1,800,000 persons are employed - in most cases on a full-time basis - in the processing and marketing sectors (10). In addition, the European Community imports more than half of its requirements, with the result that it was faced with a trade deficit of almost 2,000 million ECU in 1985.

Inevitably, any policy which aims to reduce in the short term the European production of tobacco will also have an impact on employment in those areas already affected, as well as increasing the trade deficit which is already large. Quite clearly, the policy pursued in this sector will need in future to take more account of the health aspects.

Proposed action 9 : Reorientation of tobacco production towards less toxic varieties and study of the possibilities of reconversion. With effect from 1987, the Commission will ensure that action is taken to step up the rehandelling of production towards the varieties of tobacco which are most in demand and which are also least injurious to health. In parallel, the reconversion possibilities to other activities will be examined, in particular as concerns the production of fruit and vegetables which have a beneficial role to play in the prevention of cancer.

To this end, it will act on the price guarantees to tobacco producers and on the premium paid to Community tobacco buyers. These buyers - who are either local firms, national monopolies, or multinational firms - received about 800 million ECU in 1986 from the European Community.

This amount may at first sight seem enormous when compared with the annual budget which the European Community allocates to medical research (about ten million ECU per year). But such a comparison really makes no sense. On the one hand, at this stage in the process of European integration, medical research remains for the most part a national prerogative, and the Community budget represents no more than 1 % of the total of national spending in this field.

On the other hand, the Common Agricultural Policy is, at present, one of the few policies that is integrated at European level such that the corresponding payments are not made by the Member States but by the European Community. Without doubt, even if the Common Agricultural Policy did not exist, national premiums of this order of magnitude would still be paid to the tobacco sector, in one form or another. As proof, it has been estimated that for example in the United States more than two billion dollars aid is paid to the tobacco sector.

This paradoxical situation, whether European or American, remains very much a reality. After five centuries of tobacco use, it is not so easy to get rid of it in a few years.

In parallel with this action to reduce tobacco production, there is also a requirement to reduce the consumption of manufactured tobacco in the European Community, in order to avoid a worsening of the balance of payments, which is already in serious deficit. At the time, account will be taken of tobacco importations, having regard to existing international agreements. In addition to this economic argument there is the requirement

(10) "The Tobacco Industry in the European Community", PEIDA Report, Edinburgh, 1985.

to fight against this agent which is the most widely spread carcinogen with which we are faced in our everyday surroundings, and which causes about one third of the deaths from cancer.

Proposed action 10 : Information and public awareness campaign in the struggle against tobacco. In the period 1980-1989 this action will be carried out in the European Community and directed towards the general population, teaching staff and health care workers. This public awareness campaign will reach its peak in 1989 with the "European information on cancer year" (see Chapter 2). The cost of this action for the Community budget will be less than that arising from the savings made as a result of the reduction of the premiums paid to the community tobacco buyers. As an example, a reduction of 1 % in these premiums represents about 8 million ECU. This is therefore somewhat of an indirect contribution of the tobacco sector to the campaign against cancer.

C. Protection of consumers and workers

In view of the dangers posed by passive smoking and given the need to reduce direct and indirect tobacco advertising as much as possible, it will fall to the responsible national authorities and the Community institutions to promote appropriate measures.

Proposed action 11 : Study of national provisions, and development of proposed Community Regulations on tobacco smoking in public places. Before the end of 1988, the Commission will be transmitting to the Council a proposal for the control of tobacco smoking in public places and at work.

Those proposals will be carried out after a study has been performed on the national measures governing tobacco smoking in public transport, in buildings open to the public, and at the workplace. The experience acquired by countries outside the European Community will also be taken into account.

Proposed action 12 : Study of national provisions, and development of proposed Community regulations on the limitation of tobacco publicity. Before the end of 1989, the Commission will transmit to the Council proposals seeking to prohibit direct advertising and to curb indirect advertising as much as possible, and in particular the sponsoring of sporting events.

In addition, it will be recommended that expenditure on tobacco advertising should not be tax-deductible for the companies concerned and that the resulting increase in tax revenue be earmarked for the financing of information campaigns on the dangers of tobacco.

D. Exchange of experience

All the countries concerned have already been involved, over varying periods and with varying degrees of determination and success, in public information campaigns and efforts to discourage the use of tobacco.

Action 13 : Comparative analysis of anti-smoking campaigns. In 1987 the Commission will make an evaluation of existing measures designed to help smokers to give up the habit and will encourage the widespread application of those measures that have proved successful throughout the period 1987-89.

Action 14 : Information exchange in the struggle against smoking. The Commission will also promote from 1987 exchanges of information and experience on the strategies to combat smoking that have been conducted both inside and outside the Community.

If these fourteen proposed actions are implemented, there is no question but that the European Community would be making a major contribution to the struggle against the scourge of smoking. As from 1988, an evaluation of the impact of these actions will be regularly undertaken, in particular, by means of "Eurobarometer Polls" (see Chapter 2). Furthermore, these measures will also be added to by other proposals in the field of information and health education of young people and adults. These points are also dealt with in Chapter 2.

II. IMPROVEMENT IN NUTRITION

II.1 NUTRITION AND CANCER

Many factors indicate that eating habits, including the consumption of alcohol, are of considerable importance in the induction and also prevention of several common types of cancers in men and women, such as cancer of the digestive tract - from the mouth to the rectum - and breast cancer. In the study mentioned earlier, Doll and Peto estimate that in the United States nutritional factors could be involved in more than one third of human cancer deaths. However, the authors themselves admit that this evaluation is not at all accurate since the margin of uncertainty ranges from 10% to 70% (11), contrasting with their estimates on the role of tobacco, where the range of 25% to 45% is very much narrower.

There is unusual unanimity amongst oncologists on the relationship between tobacco and cancer but this is not the case with regard to the links between nutrition and cancer. Caution is still called for in this field where the precise role of numerous nutritional factors is often still unclear. However, the available research permits a few important observations to be made. From the point of view of preventing cancer, the conclusions that can be drawn are fortunately comparable with those required to reduce cardiovascular diseases. The task of those responsible for public health is therefore facilitated.

- 1) In several European countries an excessive intake of alcoholic beverages on their own are the second most important cancer risk factor after tobacco. In a country like France which has the highest per capita consumption in the world, one cancer in ten is thought to be linked to excessive alcohol consumption. Although ethanol in itself is not carcinogenic, it has been found that certain other components of alcoholic

(11) This applies only to food products in the strict sense of the term, i.e. excluding alcohol and food additives (see Table I).

- beverages are sometimes. Also, no doubt because of the chronic irritation it causes, it leads to a marked increase in the frequency of cancer in the mouth, throat and oesophagus especially when the drinker also smokes. In France, for example, the frequency of cancer of the oesophagus in persons who smoke fewer than ten cigarettes a day and who drink less than 40 grams of ethanol a day, is twenty times lower than in non-smokers who drink a litre of wine per day (80 grams of ethanol), and it is forty-four times lower than in persons who smoke twenty cigarettes a day and who drink a litre of wine a day (12).
- 2) In contrast to an excessive intake of alcohol, for which there is no longer any doubt about its harmful effect in the development of cancer (see Table 3), there is now sufficient evidence that fresh fruits and vegetables play an important but protective role for certain cancers. For example, E.Wynder and H.T. Goodman (13) convincingly demonstrated that high consumption of fresh fruits and vegetables, which include the major sources of vitamin A and C, protects against lung cancer, although recent results are suggesting that the protection does not appear among the heaviest smokers (2 or more packets daily). There is also evidence that fresh fruits and vegetables protect against the risks of cancers of the oesophagus, stomach, pancreas and colon (see Table 3).
 - 3) The overweight seem also to be at greater risk, especially women, as shown by an American study covering 750,000 people over 13 years (14). For some cancers such as those of the gall bladder and body of the uterus(endometrium), mortality rates for people who were 40% overweight were more than four times higher than the mean. In connection with the possible relations between excessive weight and mammary cancer in post-menopausal women, F. de Waard (15) reports that a statistical correlation was confirmed in 22 of the 27 studies listed.
 - 4) At present the specific role of each of the different types of fat still has to be elucidated. Several epidemiological studies nevertheless seem to indicate that, as in animals, an excessively fatty diet leads to, in particular, an increased risk of mammary and colon cancer. This observation is all the more important because these diseases are responsible for a high proportion of deaths from cancer in Europe and the United States (16). It also appears that an excessively fatty diet may be associated with cancer of the pancreas, but this hypothesis has still to be confirmed.
 - 5) The importance of dietary fibre for intestinal function has long been known. However, it was not till 1971 that Burkitt a British military surgeon (17) reported on a possible link between a low-fibre diet and

(12) A. TUYNS. International Agency for Research on Cancer, Alcohol and Cancer, Lyon 1978.

(13) E.Wynder and M.T. Goodman, "Smoking and Lung Cancer ; Some unresolved issues", *Epidemiological Reviews*, 5, p.177-207, 1983

(14) EA Lew, L. Garfinkel, : "Variations in Mortality by Weight Among 750,000 Men and Women" *Journal of Chronical Disease* 32, 563-576, 1979.

(15) F. de Waard, *Dietary Fat & Mammary Cancer*, Nutrition and Cancer, Vol.8, N° 1, p. 5-7, 1986.

(16) K.K. Carroll, *Dietary Fat & Cancer*, Nutrition and Cancer, Vol.8, N° 1, p.3-5, 1986.

(17) D.P. Burkitt, *Epidemiology of Cancer of the Colon and Rectum*, Cancer 28, 3-13, 1971.

Table 3 : Frequency of involvement of nutritional factors in certain types of cancer (source : provisional document of IARC)

Dietary Factor	Type of cancer	Nutritional factor present in the following frequency :
<u>ALCOHOL</u>		
	Mouth	75 % in conjunction with cigarette smoking
	Oesophagus	40 % alone ; 70 % in conjunction with cigarette smoking
	Larynx	25 % alone ; 30 % - 65 % in conjunction with cigarette smoking
	Liver	15 % (more than 30 grs ethanol per day) 40 % (more than 370 grs ethanol per day)
<u>FRUIT AND VEGETABLES</u> (including vitamins)		
Low fruit and vegetables	Oesophagus	15 % - 50 %
Low fruit and vegetables	Stomach	70 %
Increase in vitamin C by 100 mgrs/day	Stomach	55 % instead of 70 %
Low fresh fruit	Pancreas	15 %
Low fresh fruit (probably vitamin A)	Lung	20 %
Low fresh vegetables	Colo-rectal	20 % - 40 %
<u>OBESITY</u>		
	Breast	0 % - 12 %
	Body of the uterus (endometrium)	20 %
	Prostate	20 %

TABLE 3 : Proportion of cases of particular types of cancers attributable to some dietary factors (source : IARC)

While it is currently believed that dietary factors may be important determinants of the risk of various forms of cancer, the estimate of the cancer burden which can be confidently attributed to individual dietary constituents cannot yet be precisely determined because of the limitation of available data. In this table, estimates are presented of the attributable risk (AR) of those forms of cancer where the association with cancer can be assessed. The list is not exhaustive: several dietary constituents which may be carcinogenic to man cannot be assessed due to lack of evidence. The estimates of attributable risk (AR) given are based on studies performed in European, Australasian or North American population groups. The range of estimates depends on varying prevalence of the risk factor in different populations. For example, lower figures for risk attributable to alcohol apply mainly to north European population, while higher figures were estimated from studies conducted in southern Europe.

Dietary factor	Type of cancer	Attributable risk : proportion of cases etiologically linked to the indicated factors
<u>ALCOHOLIC BEVERAGES</u>	Buccal cavity and oropharynx	Up to 75% linked to tobacco
	Hypopharynx	10 to 70% for consumption of 20 to over 120 g per day
	Larynx	25 to 40% for consumption of 20 to over 120 g per day; 30 to 65% linked to tobacco
	Esophagus	40 to 75% for consumption of 20 to over 120 g per day
	Liver	15 to 40% for consumption of 30 to 340 g per day
<u>LOW INTAKE OF FRESH FRUIT AND VEGETABLES</u>	Esophagus	15 to 50%
	Stomach	Up to 70%
	Pancreas	Up to 15%
	Colon & rectum	20 to 40%
	Lung	Up to 20% (probably low intake of foods rich in beta-carotene)
<u>EXCESSIVE INTAKE OF CALORIES (OR FAT ?) LEADING TO OVER-WEIGHT</u>	Breast	0 to 12% (very uncertain)
	Endometrium	Up to 20%
	Prostate	Up to 20%

- the incidence of cancer of the colon. Although there was considerable controversy about this hypothesis, it is now beginning to be accepted, especially since it has been confirmed by more recent studies using modern techniques to measure the fibre content of foodstuffs (18).
- 6) Other elements consumed in small quantities, often quite accidentally may also influence the onset of certain human cancers. Some of the mycotoxins produced by moulds, such as the aflatoxins, have proved to be carcinogenic in animals.

According to the work performed by the International Agency for Research on Cancer (IARC) (19), we cannot, either, overlook the possible role of nitrites and perhaps also under certain conditions, nitrites. Present in the form of residues in drinking water and vegetables, and used as preservatives in certain meats and sausages, these nitrogen compounds may be converted, under conditions that still have to be clarified, into N-nitroso compounds in the stomach, which are highly carcinogenic in animals.

In addition, some food additives which have proved carcinogenic in animals such as butter yellow are today prohibited. According to Doll and Peto, less than 1 % of all cancer deaths might originate from harmful food additives. Their margin of uncertainty ranges from -5% to 2 %, the negative lower border indicating that some of these additives might also help to prevent cancer. In particular, the antioxidants which have improved the preservation of foods appear to have played some part in the spectacular reduction in the number of stomach cancers.

- 7) Finally, J.V. Joosens (20) suggested in 1980 that too much salt in food could increase the risk of stomach cancer. These initial results are contested and still have to be confirmed.

In summary, nutritional factors can play an important role, either in the production or in the prevention of certain cancers. Nevertheless, an estimate of the cancer burden which can be confidently attributed to individual dietary constituents cannot yet be precisely determined because of the relatively small number of epidemiological studies performed. In Table 3, estimates are presented of the frequency of involvement of alcohol, fruit and vegetable and obesity in certain types of cancers, based on studies in European, Australasian and North American population groups. This list is not exhaustive; it is not possible to complete it at present with associations such as between excessive fat intake and prostate cancer, and insufficient vitamin intake and bladder cancer, as these and other dietary constituents cannot be assessed due to their being only a few studies available. Further, the association with total caloric intake and the risk of certain cancers has proved difficult to evaluate for a variety of reasons, including the problems of measuring total caloric intake in individual cases.

Obviously further research is necessary to clarify the possible relationships between food and cancer. Some European research programmes are already working along these lines and will continue to do so (see Chapter IV). At this stage, however, it is possible to make use of the available results, despite uncertainties still hovering over some of them, in deciding on the actions to be taken over the period 1987 to 1989.

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- (18) World Health Organization "Health Nutrition : Preventing Nutrition Related Diseases in Europe", July 1986
- (19) H.Bartsch and R.Montesano (IARC) Relevance of nitrosamines to human cancer. Carcinogenesis, Vol.5, N° 11, pp.1381-1393, 1984.
- (20) Joosens JV : "Stroke, Stomach Cancer and Salt : Possible Clue to the Prevention of Hypertension ?" in Epidemiology of Arterial Blood Pressure, The Hague, Nijhoff, 489-508, 1980.

II.2. 1987-89 ACTIONS

The success of a policy designed to improve nutrition and health will depend on the cooperation of a large number of participants, namely, consumers and their representative organizations, the teaching and medical professions, farmers and agri-foodstuffs businesses, restaurants, national authorities and the Community institutions. The latter have important, specific powers in relation to the management and adaptation not only of the common market in industrial products, but also in the Common Agricultural Policy.

Clearly, however, sufficiently explicit guidelines addressed to each of these many participants would be required in order to ensure adequate mobilization of their energies, and it is appropriate to prepare guidelines that are clear, as well as being adapted to each case.

A. Elaboration of guidelines relating to nutrition and cancer prevention.

Attempts to draft such guidelines have already been made by several expert committees throughout the world. For example, the National Cancer Institute (21) in the United States in 1982, or again in the European context the European Organization of Cooperation in Cancer Prevention Studies (ECP) (22) (23). These nutritional recommendations will naturally be carefully studied and improved as far as possible.

Action 15 : Analysis of existing information on "nutrition and cancer".
The numerous data available concerning the relationship between nutrition and cancer will be collated before the end of 1987.

To this end, the European Commission intends to exploit and coordinate the expert knowledge already available within the committees and consultative groups which advise it on nutrition ; it will also consult other competent international bodies such as the "European Organization for Cooperation in Cancer Prevention Studies" (ECP) or the "International Agency for Research on Cancer" (IARC).

Action 16 : Development of nutritional recommendations against cancer adapted to each of the categories of participants concerned. At the same time, efforts will be made to draw up specific recommendations which could be addressed to the different categories of participants concerned : consumers and their representative organizations, the teaching and medical professions, farmers and agri-foodstuffs businesses, and the catering sector.

Clearly, these guidelines must be adapted so as to be relevant to each category, although the wealth of regional and national diversity within the Community must always be respected. By way of example, and exclusively on

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- (21) National Cancer Institute "Cancer Control" - Objectives for the Nation: 1986 - 2000, Washington, 1986.
 - (22) E.C.P. Symposium, "Diet and Human Carcinogenesis", Elsevier Science Publishers, Amsterdam, 1986.
 - (23) "Proceedings of a Joint E.C.P. - I.U.N.B. Workshop on Diet and Human Carcinogenesis", Nutrition and Cancer, 1986.

the basis of the observations set out above, a number of major nutritional principles to be addressed to consumers and the teaching and medical professions can be formulated : avoid excessive alcohol consumption, avoid being overweight, eat low fat foods, eat fresh fruit, vegetables and cereals rich in dietary fibre (see below the "European Code against Cancer").

B. The Common Market and nutrition

In the agri-foodstuffs sector, Community provisions designed to protect the health of consumers have been in force for a considerable length of time. For example, since 1962 only those food additives appearing on a list approved by the Council of Ministers based on a European Commission proposal, following consultation of the "Scientific Committee on Food" may be used in the Community. The following new actions are to be initiated as from 1987.

Proposed action 17 : Harmonization of nutritional labelling of foodstuffs in the European Communities. In 1987, the European Commission will send to the Council a draft directive harmonizing the presentation of nutritional information to be placed on the packaging of foodstuffs.

Proposed action 18 : Consumer protection against certain agents in foodstuffs. The results of research underway on "Nutrition and cancer" could lead the Commission to send to the Council new proposals designed to provide the public with greater protection against certain potentially carcinogenic agents (mycotoxins, chemical substances, etc.).

C. Agriculture and consumer protection

Farmers and, consequently, the Common Agricultural Policy play a central role in the strategy aimed at responding more effectively to the nutritional and health concerns which are being voiced by consumers and the medical profession. The following projects are to be implemented in the period 1987-1989.

Action 19 : Improvement of existing information campaigns concerning nutrition. As from 1987, existing information and publicity campaigns in respect of certain foodstuffs will be modified in order to take greater account of the latest research findings concerning the links between nutrition and health.

As an example, publicity campaigns for dairy products should be better oriented towards the target groups which have been selected. Whole-milk can undoubtedly be recommended for young children. As concerns adults, they should be directed in the majority of cases towards low fat dairy products.

Action 20 : Initiation of information campaigns for recommended foodstuffs. New information and publicity campaigns in respect of foodstuffs which are potentially beneficial to health on the basis of the nutritional guidelines will be drawn up as from 1987.

Such projects can be envisaged in the case of fruit and vegetables. The success of these campaigns will be all the greater if they can be integrated into an overall effort designed to increase the awareness not only of the general public but also of school and university students and teachers (see Chapter 2).

Proposed action 21 : Promotion of appropriate foodstuffs and techniques. In the light of these most recent nutritional findings, attempts will be made within the context of the Common Agricultural Policy to promote the production conditions and foodstuffs considered most suitable from the public-health standpoint.

Two types of action could be considered :

- legislative amendments designed, for example, to modify existing requirements relating to butter. Currently the designation "butter" cannot be used unless it contains a high level of fat (minimum 80%). In the future the designation "butter" should be extended to butter with a lower fat content, which is more appropriate to adult nutrition. Of course to be allowed to use this label, this butter must be produced exclusively from milk.
- the promotion of production methods using existing techniques to the best of our knowledge so as to reduce the utilisation of certain chemical products, as for example in the concentration of nitrates and nitrites in vegetables.

At this stage, these different examples can have no more than an illustrative character. Nevertheless they give some idea of the importance of this field of action which is opening up for the Common Agricultural Policy.

D. Exchanges of information and experience concerning nutrition

Pilot projects in the nutritional field are in progress in certain areas, particularly in Italy, Netherlands and Sweden. They involve participants at the local level (retailers, the agri-foodstuffs industry, consumers, schools). Their main purpose is to test the effects of nutritional information and health education programmes.

Action 22 : Evaluation of pilot experiments in nutrition. These pilot experiments will be evaluated and their results disseminated in due course. The Commission could promote further pilot projects in other parts of the Community, if this proved appropriate.

Action 23 : Exchange of information on "nutrition and cancer". As from 1987, the European Commission will ensure a regular exchange of information on the results of studies, research and experiments relating to "nutrition and cancer" by means of seminars and conferences, which will also be open to

experts from non-member countries, and by the extensive, though selective, dissemination of the results obtained.

It will obviously be necessary to supplement, clarify or expand these nine actions, which are designed to improve nutrition within the Community in an attempt to prevent cancer, as new, reliable data become available. Even at this stage, it is right to consider that they will make a significant, if modest, contribution to the fight against cancer. Furthermore, they also have a role to play in improving the prevention of cardio-vascular diseases.

III. PROTECTION AGAINST CARCINOGENIC AGENTS

III.1. THE DIVERSITY OF CARCINOGENIC AGENTS

According to Doll and Peto, tobacco, alcohol and diet, taken together, are the causes of more than two thirds of deaths from cancer. The remaining third results from other factors present in our daily environment, in particular radioactivity and ultra-violet radiations, viral infections, and chemical substances.

A. Radioactivity and ultra-violet radiations

The accident of the nuclear reactor of Tchernobyl has drawn attention to the risks arising from ionizing radiation.

All humans are exposed constantly to radiation as a result of cosmic radiations and from radio-elements present in the soil and in foodstuffs. To this natural dose of radiation has to be added the dose resulting from human activities which gives rise to a similar level of exposure. The mining and milling of uranium and other radioactive ores, the nuclear energy industry, with their radioactive wastes result, on average, for the populations of those countries in which nuclear energy is developed, in a dose which is far below that resulting from natural radiation.

In fact, 80 % of the dose received from human activities is due to medical uses of ionizing radiation, essentially radio-diagnosis. Continued efforts have been made in this sector to reduce the doses resulting from medical sources. In particular, there has been recently considerable progress in the reduction of doses resulting from radio-diagnosis, as for example in mammography (breast x-ray).

There has been a recent addition to this background radiation as a result of the radioactive isotopes released into the atmosphere by the Tchernobyl accident. In Western Europe, there is generally less than a hundredth of the annual dose received from natural radiation. It is about one tenth of the natural radiation of Central Europe. By way of comparison, the radiation resulting from Tchernobyl is, in Western Europe, less than a hundredth of the dose due to the radiation fallout resulting from the experimental atomic explosions in the 50's and 60's. The consequences for human health are likely to be extremely limited. It should be remembered that Doll and Peto estimated that less than 1% of cancers were due to ionizing radiation.

Among non-ionizing radiations, ultra-violet rays are carcinogenic. They are present in sunlight. Ultra-violet rays can cause skin cancer as a result of irradiating the germinal epithelium. This has been observed, in particular in persons with white skin. Ultra-violet rays are therefore responsible for a high proportion of basal and squamous cell cancers which are easy to treat and cure. Ultra-violet sunlight is also incriminated in the causation of malignant melanomas, cancers of a serious nature, which are difficult to treat and for which the frequency is increasing regularly in certain populations (Australians for example) whose skin is very white and who are frequently exposed to sunlight. The most dangerous exposures are those which occur when the skin is not tanned, and therefore does not filter out the sun rays. For this reason, it is generally advised to avoid prolonged and over exposures to the sun in those persons who have white skin, and in these cases it is recommended that creams are used which filter out the ultra-violet light.

B. Viruses

It has now been proved scientifically that viruses play an important role in the development of human cancer resulting from the work of the American Robert Gallo, and of other Japanese scientists, who demonstrated at the beginning of the 1980's, the essential role of the HTLV (Human T-cell Leukeamia Virus) retrovirus in the development of a type of leukaemia observed above all in Japan and in the Caribbean. In addition, for many years, a small number of viruses have been suspected of being implicated in the development of certain cancers. A well known case is that of the hepatitis B virus which is associated with an increased risk of liver cancer in those persons who have had viral hepatitis, most of all in Africa where aflatoxin may be a determining cofactor.

Furthermore, the German, Zur Hausen at Heidelberg has demonstrated that many genital lesions are associated with the papilloma family of viruses. Certain of these could be at the origin of cancer of the cervical cervix, in particular, the papilloma-virus 16 which is found in more than half of these cancers. Here again, further research is required not only to clarify the possible role of cofactors but also, in the longer term, to develop vaccines. Nevertheless, in the short term, simple preventive measures in the field of sexual hygiene can be recommended.

C. Chemical substances

Thanks to Sir Percival Pott, we have known for two centuries, that certain chemical substances in our environment can cause human cancers. It is a somewhat remarkable fact that the rise of the Industrial Revolution over the past two centuries which has been accompanied by an explosion of new chemical substances, leading to an increase in the exposure both of workers and of the general public to these substances, has not resulted in an epidemic of cancers. Furthermore, thanks to the cancer registers which have been present in some industrial countries for almost fifty years, and to the epidemiological studies carried out throughout the world, only a few hundreds of chemical substances - of the 100,000 in the European Inventory of Existing Chemical Substances - have been shown to be carcinogenic. It is important to underline that international co-operation in this field has been fruitful.

It was in 1965 that General de Gaulle, then President of France, proposed that the major countries devote a small portion of their military budget to the creation, under the auspices of the World Health Organization, of the International Agency for Research on Cancer (IARC). Now installed in Lyon, France, IARC has evaluated since 1971, the carcinogenic risks of chemical substances, and of certain mixtures for humans.

Of 107 substances, mixtures of substances, or industrial processes for which there is epidemiological data, 39 are considered to cause cancer in humans, and 68 others probably do so (24).

An increasing number of other chemical substances, for which there are insufficient epidemiological data, are the subject of tests in animals. According to IARC, in September 1986, 127 of these were carcinogenic in animals, and as such are suspected of being carcinogenic for humans.

Finally, it has been found that a large proportion of chemical carcinogens also induce mutations in the genomes of bacteria or animal cells. This finding is of great practical significance as it provides a direct possibility, by means of simple and rapid assays, to obtain information on which substances are likely to be carcinogenic. Most of the substances currently on the market could therefore be screened in this way.

It is evident that the work of evaluating the mutagenicity and carcinogenicity of chemical substances should be speeded up throughout the world. It is also appropriate to use the results of work already performed in order to determine if these substances can be used, and in what conditions.

III.2. ACTIONS FORESEEN FROM 1987 TO 1989

A. EURATOM Treaty and protection against ionizing radiations

The EURATOM Treaty has a fundamental task of the European Atomic energy Community to "establish uniform safety standards to protect the health of workers and of the general public, and to ensure that they are applied." These maximal standards for radioactivity were established for the first time in 1959, and have been modified several times since then. Furthermore, in 1984, a Community Directive was adopted for the protection of persons against radioactivity resulting from medical examinations or treatment.

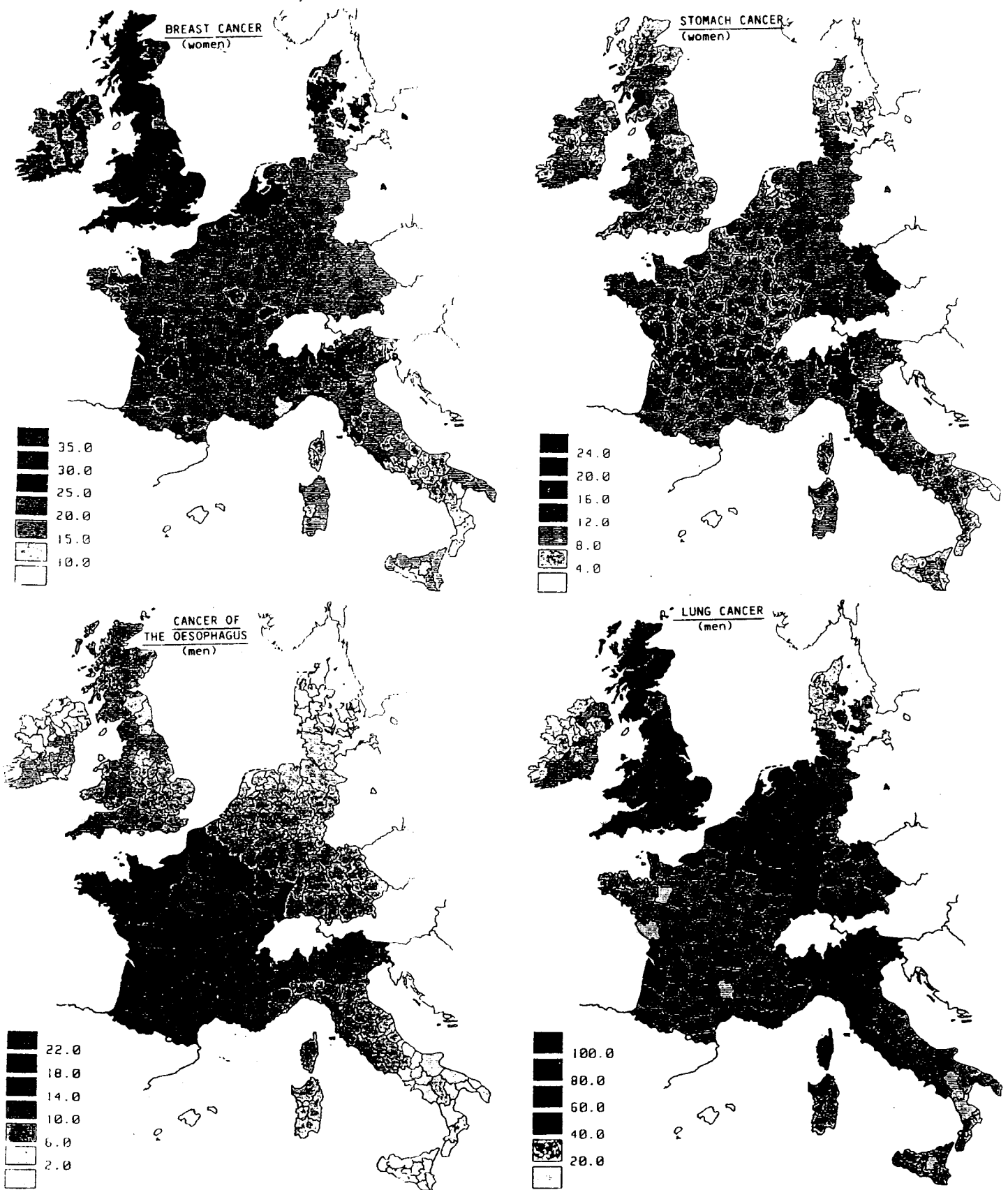
Proposed action 24 : Protection against ionizing radiations and follow-up to Tchernobyl. During the period 1987-1989, several actions are foreseen, in particular : a review of emission standards for nuclear power stations ; the establishment of maximal limit values for the radioactive contamination of foodstuffs ; the elaboration of additional protection measures for the protection of workers in nuclear power stations.

In addition, a feasibility study on the evaluation of effects of natural radioactivity is foreseen within the context of the research programme on radioprotection (see chapter 4).

(24) H.Vainio, K.Hemminki, J.Wilbourn(CIRC) Data on the Carcinogenicity of Chemicals in the IARC Monographs, Carcinogenesis, vol.6 N°11, p.1653, 1985.

NUMBERS OF DEATHS FROM CANCER PER 100,000 INHABITANTS (age-standardized, in the 1970s)

Maps drawn up for the Commission of the European Communities by the International Agency for Research on Cancer (provisional version)



NOTE : These maps show, for some common types of tumours, the considerable variations in the risk of cancer among the populations of the various Community countries. These can be linked for the most part environmental cancers rather than to genetic differences. It is therefore logical to think that for these genetically similar European populations, the lowest risk observed can be achieved through an appropriate prevention policy.

B. Protection of workers and consumers against carcinogenic chemical substances

Since 1984 the European Commission has been undertaking the classification and labelling of chemical substances likely to be carcinogenic. The optimal conditions of use of these substances are then subsequently determined, either by the European Commission, or by the Council, depending on the case.

Nevertheless, the European Community did not wait until 1984 to establish a certain number of Community Directives on the protection of workers, as for vinyl chloride monomer (1978) and asbestos (1983). For the protection of consumers other directives have introduced a ban on the marketing of vinyl chloride monomer used as a propellant in aerosols (1976) and certain flame retardants used in childrens' clothing (1979, 1983).

It is essential to speed up the work at Community level, of classification and labelling, as well as the determination of the optimal conditions of use of the carcinogenic substances thus classified.

Action 25 : Creation of an observation antenna and establishment of a list of chemical substances suspected of being carcinogenic. As from 1987, an observation antenna will be created within the European Commission which will collect as quickly as possible the data on suspected substances.

It will establish appropriate contacts with relevant organizations, in particular IARC, with a view to avoiding any duplication of work, and it will also draw up a Community list of substances to be examined, as in the attached diagram.

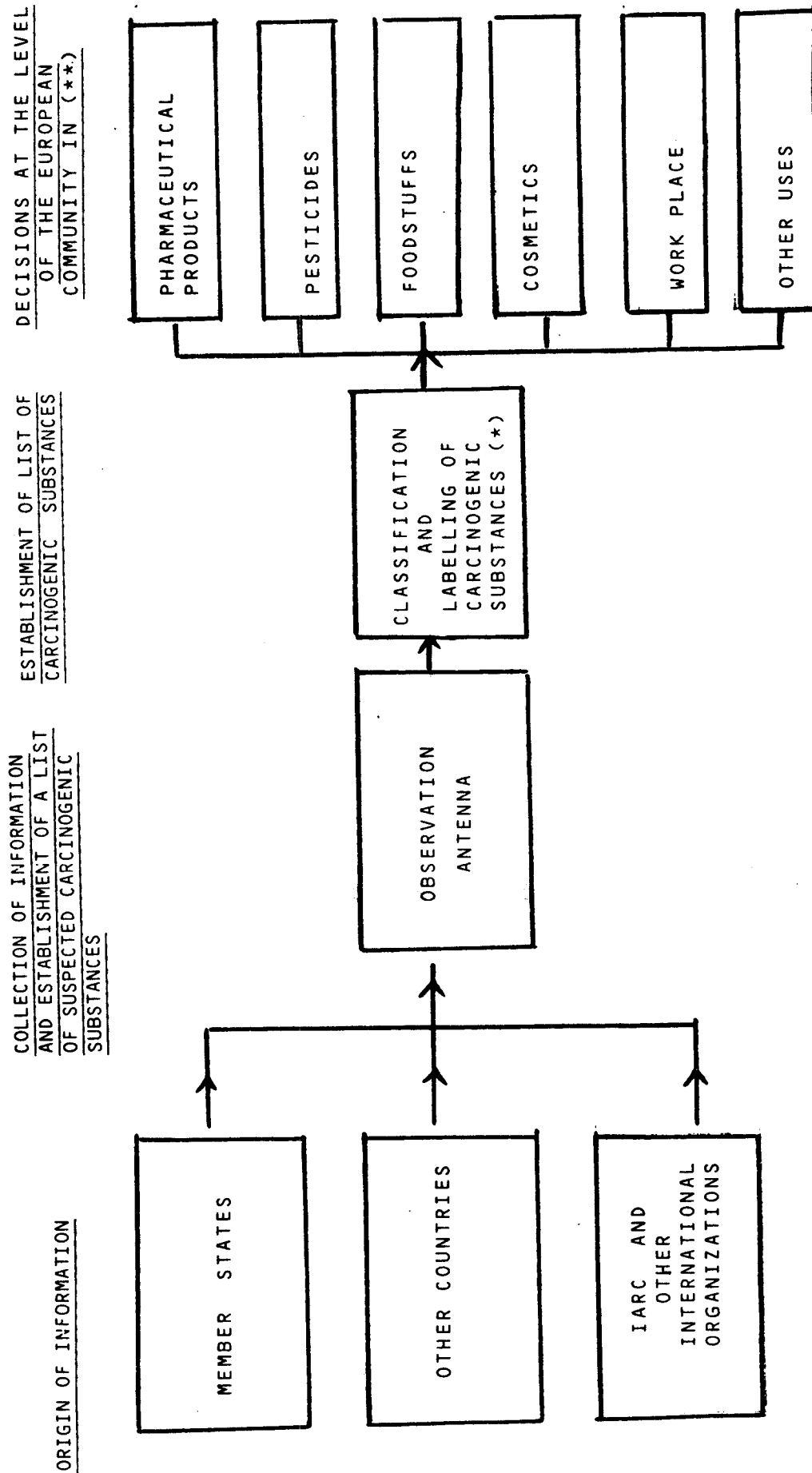
Decisions on the classification and labelling of chemical substances are made by the European Commission, with the assistance of a national expert committee. Since 1984, this committee has been dealing with suspected carcinogenic substances, and, by the end of 1986, only about fifty substances have been classified and labelled with the warning "can cause cancer". It is therefore necessary to speed up the work in this field.

Action 26 : Speeding up of the work at Community level, and creation of a special group on "classification and labelling of carcinogenic substances". The speeding up as from 1986 of the work of classification and labelling of carcinogenic substances will be continued in the years 1987 to 1989 in order to achieve 50 evaluations per year.

This means that by the end of 1989, about 200 substances will have been studied. In order to achieve this, a special group "classification and labelling of carcinogenic substances" will be set up within the European Commission.

In parallel, the European Community will make decisions on the optimal standards of use of those substances which are carcinogenic or suspected of so being, in order to improve the prevention of occupational cancers and the protection of consumers. It is evident, this is a delicate task in view of the economic implications that could arise as a result of a decision to ban or to fix limit values for use. In the latter case, the situation is complicated, as a result of the impossibility of carrying out experiments on humans for the determination of thresholds for exposure (if any) and the choice is therefore as much political as scientific. As a consequence, the

DIAGRAM TO SHOW THE EUROPEAN APPROACH TO CARCINOGENIC SUBSTANCES



* Decisions are taken by the European Commission with the aid of a technical committee, assisted by a group of scientific experts
** In the majority of these areas, the European Commission is aided by advisory committees

corresponding decisions have to be taken after close examination, but all the same there should not be unreasonable delays.

Proposed action 27 : Adoption of directives currently being discussed by Council for the protection of workers (naphtylamine, aminodiphenyl, nitrodiphenyl and benzidine; benzene). These two proposed directives are currently being examined by Council, with a view to their being adopted by 1987 at the latest. They concern substances which cause cancers of the bladder and bone marrow (see Table 4).

Proposed action 28 : New directives for the protection of workers against carcinogenic substances. The European Commission will submit to Council, as from 1987, other proposals for directives aimed at the fight against occupational cancer. To this end, the list of fifty chemical substances already labelled as causing cancer by the end of 1986 will be used. A group of substances will be dealt with at the same time, and each directive will establish the limit values relating to each substance. The work will be completed as and when new substances are classified and labelled.

Proposed action 29 : Prevention of occupational cancers by improving the practical organization in undertakings, including information to employers and workers. By end 1988, the European Commission will put forward proposals in this area, including those for small and medium sized undertakings. From 1987, appropriate information on the prevention of occupational cancer will be drawn up and published.

Table 4 : Examples of carcinogenic agents and industrial processes, and their effects on humans :

<u>Examples of carcinogenic agents</u>	<u>Site of cancers</u>
Asbestos	lung, pleura, peritoneum
Aromatic amines :	
4-aminodiphenyl and its salts	bladder
Benzidine and its salts	bladder
2-naphtylamine and its salts	bladder
4-nitrodiphenyl	bladder
Benzene	bone marrow
Bi-(chlormethyl)-ether	lung
(Chlormethyl)-methyl-ether	lung
Vinyl chloride	liver (angiosarcoma)
Zinc chromate	lung
Arsenic trioxide	lung, skin
<u>Examples of industrial processes</u>	
Underground haematite mining (25)	lung
Isopropyl alcohol manufacture (25)	nose and nasal sinus
Leather industry (tanning) (25)	nasal cavities
Nickel refining (25)	lung, nasal cavities

Proposed action 30 : New measures for public protection against carcinogenic substances. Finally, new proposals will be drawn up by the European Commission, using the list of about fifty substances which have been classified and labelled, which will define the optimal conditions of use of

(25) The specific compound(s) responsible for a carcinogenic effect in humans have not yet been identified.

carcinogenic substances, in particular within the context of the fourth programme on the protection of the environment (1987-1992).

IV. SYSTEMATIC SCREENING AND EARLY DIAGNOSIS

IV.1. PRELIMINARY COMMENTS

The progress in these fields is so rapid that in the not too far distant future, an ideal world may be attained in which all types of cancer should be detected by screening and sufficiently early detection. Yet in today's world this is far from true : on the one hand, for certain types of tumour there is no reliable technique available. On the other hand, considerations of an economic nature cannot be avoided.

For certain sites, such as the colon or the uterine cervix, a cancer is often preceded by precancerous lesion : polyps in the colon, which can be detected by colonoscopy, or precarcinogenic cells in the uterine cervix, which can be found following a cervical smear. Systematic screening of the populations at risk permits the exeresis of such lesions before the tumour develops.

For other sites, in particular the breast, it is possible to make an early diagnosis of the tumour, which thus increases the chances of a successful outcome of treatment. Recent progress in medical techniques, in particular mammography, has allowed earlier detection of such tumours.

A. Cancers of the uterine cervix

Certain countries in Europe and in North America have had screening programmes for cancer of the uterine cervix since the 1940's. The method used is a cervical smear, called a PAP-test, after its inventor the Greek biologist Georges Nicolas Papanicolaou (1883-1962) who developed it in 1941. The International Agency for Research on Cancer (IARC) organized in November 1984 a workshop on the evaluation of existing screening programmes for gynaecological cancer (26). The conclusion of this collaborative study was that the degree of protection offered by mass screening for cancer of the uterine cervix was 91 % for those aged between 20 and 64 years of age if it was carried out every year or every three years. This degree of protection fell to 84 % if the screening was performed every five years. The Committee of European cancer experts, considered that at present, in view of the varying stages of development in the Member States of the European Community, the following rule would provide adequate protection : "After the age of 20-30 have a cervical smear every 3-5 years".

Nevertheless, there is recent evidence from certain countries such as Denmark and the United Kingdom, which suggests that there is an increase in the frequency of invasive cancers in younger women aged between 20 to 35 years. This finding has led certain oncologists to think that there should be a reduction in the age at which cervical screening begins.

(26) M.Hakama, J.Chamberlain, N.E.Day, A.B.Miller, P.C.Prorok, Evaluation of screening programmes for gynaecological cancer, British Journal of Cancer, N° 52, p. 669-673, 1985

B. Cancer of the breast

Cancer of the breast, according to the Council of Europe, is the most frequent tumour in women, causing about a quarter of female deaths in the age range 35-54, but which can be detected at an early stage using several methods. A general practitioner, or a patient, who is well trained can detect manually tumours as small as ten millimetres in diameter. More than three quarters of these are benign nodules, and when they are malignant, they are more easily treated.

As regards medical imaging techniques, there are contrasting results. Thermography and ultrasound have been somewhat disappointing in the sense that they are not much better than a well performed palpation. By contrast, mammography has made considerable progress, not only from the point of view of protecting patients from ionizing radiations, but also from the point of view of early detection.

This type of radiological examination of the breast is an improvement over manual methods as it permits the detection of nodules which are only a few millimeters in diameter. Moreover, it can generally detect whether or not a tumour is malignant.

Studies performed in the United States, Sweden and the Netherlands, on several tens of thousands of women followed for about ten years, has demonstrated a reduction of about 30% in the mortality from cancer of the breast of women over 50 years of age who were subject to mammography examinations every two years.

In the majority of the countries of the European Community there is a lack of equipment and specialized staff, and because of this, systematic mammography is a long-term objective in many of these countries. In the meantime the European Committee of cancer experts consider that regular screening of the breasts should be carried out, and if possible, mammography for women who are more than 50 years of age.

C. Cancer of the colon and rectum

These cancers are also very frequent after the age of 45 years, and are associated with high mortality because they are often diagnosed too late. The faecal occult blood test, which can be used in principle as a simple and cheap systematic screening test, allows the detection of precancerous lesions (25%) or of haemorrhaging tumours. Nevertheless, this test has not, in the past, been as useful as was first thought. However, the recent development of improved tests offers hope for better screening possibilities.

The digital rectal examination is another test which can easily be performed by a trained general practitioner. This examination technique allows the detection of abnormal lumps situated in the rectum or prostate. Finally, medical imaging techniques, colonoscopy which is performed after careful preparation of the patients, allows the walls of the rectum and colon to be examined. This long and difficult examination is only to be recommended as a routine measure for high risk groups such as those who have a family history of polyps.

D. Other tumours

For the majority of other tumours, in particular those of the skin (carcinomas or melanomas), and of the upper airways, self assessment by the general

public should show up any abnormal change (moles or beauty spots which change in size or bleed, persistent alteration in the voice, abnormal lumps etc). In such circumstances, a consultation without delay with the general practitioner is called for.

Finally, the possibility of using recent research results relating to tumour markers, and monoclonal antibodies which can identify specific types of cancer, offers hope for the future for the early detection of certain tumours.

IV.2. ACTIONS FORESEEN FROM 1987 TO 1989

Screening policies and programmes exist in many parts of the European Community, in particular for cancer of the uterine cervix and cancer of breast. It will be necessary, not only to promote exchanges of information experience between these programmes, but also to carry out an up-to-date evaluation of the available methods, taking into account the facilities and resources existing at local, regional and national level, as well as the cost implications.

Action 31 : Promotion of a policy for systematic screening and early diagnosis of cancer of the uterine cervix and cancer of the breast. The European Commission will examine from 1987, together with the health services of the Member States, the ways and means necessary within reasonable limits for the establishment in each Member State of a policy for the systematic detection and early diagnosis of cancer of the uterine cervix and cancer of the breast.

For the other common cancers such as colo-rectal cancer or cancer of the prostate, the policies followed or envisaged by the health services of the Member States are divergent, and in certain cases their validity is still under discussion. Nevertheless, for these cancers certain populations at risk can be identified and can be followed specifically.

Action 32 : Evaluation and improvement of the policy for the systematic screening and early diagnosis of other common cancers. Beginning in 1987, the European Commission will promote exchanges of information and experience between Member States with a view to evaluating the efficacy of existing programmes, and aimed at improving their efficiency.

V. EUROPEAN CANCER PREVENTION CODE

Previous developments have shown that many cancers can often be avoided. If not, it can sometimes be cured provided it is detected early enough. These general considerations must naturally be placed in context and put across to the general public, teachers and doctors. This is a fundamental duty of the public authorities at all levels.

At European level, however, it would be unrealistic to go into too much detail, especially as regards food. Indeed, eating habits are an integral part of the culture of a community and vary considerably between countries, regions or even towns.

However, the twelve high-level cancer experts who have helped the Commission to prepare this plan of action consider that it is possible, and desirable, to draw up a few rules at European level that are understandable and acceptable to all Europeans. It has been agreed to call this lowest common denominator the "European cancer prevention code". It consists of ten simple rules. A title could also be the "Ten European commandments for cancer prevention". At this point in time the wording is provisional and a definitive text will be drawn up after the first half of 1987.

PROVISIONAL VERSION OF THE "EUROPEAN CODE AGAINST CANCER"

Preamble: This code is an integral part of the 1987-1989 action plan of the programme "Europe against cancer" and it covers the fields of cancer prevention, information and health education of the public, training of health care workers, and cancer research.

Cancers can be avoided

1. Do not smoke. If you are absolutely unable to stop, smoke cigarettes with a low tar content, and do not smoke in the presence of others. (*)
2. Moderate your consumption of alcoholic drinks.
3. Eat sufficient fresh fruits and vegetables.
4. Eat sufficient cereals with a high fibre content.
5. Eat low fat foods and avoid becoming overweight.
6. Avoid, as far as possible, sunburn and intense or prolonged exposure to the sun, especially for children or if you are not used to it.

Certain cancers can be cured if they are detected early enough.

7. Above 20-30 years of age, have a regular cervical smear every 3 to 5 years.
8. Check your breasts regularly, and if possible, undergo mammography above the age of 50.
9. See a doctor if you notice any bleeding or a change in the size or colour of any mole or beauty spot.
10. See a doctor if you notice a lump or abnormal bleeding ; a persistent cough or change in the voice.

(*) For those countries where it is applicable, this commandment should be completed by "Do not use chewing tobacco or suff"

Action 33 : Transformation into layman's language of the "European code against cancer". In close collaboration with communication specialists, these ten European commandments will be transformed into a form which can be used by the media, in all the languages of the European Community, before the end of the first half of 1987.

These commandments could, of course, be completed and changed to take account of the particular situation in each of the countries ... and of each European.

In addition, in those countries in which wine is commonly consumed, commandment number two could be added to by an indication of the daily maximum admissible quantity.

In the same way, a doctor could modify the commandments for each of his patients. For example, for a confirmed smoker who cannot stop smoking, he could recommend low tar cigarettes (less than 10 mg) and only a few (less than 5 a day).

Furthermore, there is nothing to stop a country going much further than indicated in the preceding rules as concerns systematic screening and early detection. As an example, cervical smears could begin every three years from the start of sexual activity, without waiting until the age of 20 years. It is evident that all the previous actions, which are concerned with the promotion of better prevention by a more systematic screening and earlier detection of cancer, should, to be effective, rely on a public that is correctly informed and educated, and well trained health professionals.

CHAPTER 2

INFORMATION AND HEALTH EDUCATION IN THE PREVENTION OF CANCER

Two striking facts have emerged with blinding clarity, and have been known to cancer specialists for several years :

- not only can most cancers be prevented, but
- many can also be cured, provided they are detected in the early stages.

Yet, the public is largely unaware of these two incontrovertible facts. Where cancer is concerned obscurantism is often the rule. Consequently, the 30 or so Community recommended actions regarding prevention, screening and early detection can only be fully effective if they are supplemented by information and education campaigns aimed at young people and adults.

Such campaigns are carried out at more or less regular intervals in several European countries by public or private organizations, such as national leagues and associations against cancer. European cancer specialists unanimously believe that these useful and necessary actions should be reinforced and extended, and supplemented by a European campaign.

Needless to say European action of this type would not be a substitute for efforts deployed, or to be deployed at national level. However, it cannot but reinforce the effectiveness of national measures by setting itself and achieving the following three objectives :

- to make young people and adults aware that concentrating efforts, resources and experience at European level is the best guarantee of success in the fight against cancer. The basic principles of cancer prevention confirmed by the European Committee of Cancer Specialists should have more power of conviction and persuasiveness with people in Europe ;
- to achieve economies of scale by avoiding unnecessary and costly duplications of effort, by jointly working out basic modules for the information and education of the public. Naturally, the basic modules can be tailored to accommodate the diversity of national and regional cultures ;
- to promote exchanges of experience between the various bodies concerned in the European countries in order to gain the most benefit from successes and failures in the field of public information and education.

I. INFORMATION OF THE GENERAL PUBLIC

A European information campaign should first and foremost concentrate on cancer prevention for this is where individuals have the widest margin for action and the chances of success appear most promising.

The value of the anti-smoking campaign, better eating habits, the campaign against carcinogenic agents and the provision of regular and early cancer detection facilities must be brought to the attention of the general public. The "European Code against Cancer" will, of course, spearhead the campaign. Its aim is to convince Europeans to make the necessary changes in their life-style to prevent cancer and undergo the recommended tests and examinations to detect malign tumours in time.

To transmit this ambitious message to the general public a sustained effort spread over three years will be needed. An analysis carried out in 1984 by the International Advertising Association (IAA) (27) showed that in the best of circumstances the message of the major public information campaigns conducted between 1981 and 1983 in the European Community was remembered by only :

- 15 % of the target public in the first year,
- 30 % of the target public in the second year,
- 60 % of the target public in the third year.

These figures therefore justify the principle of a multi-annual information campaign which, in the Commission's view, should culminate in 1989 in the "European Information on Cancer Year" as it concerns screening prevention and treatment. Therefore, the first step is to identify the know-how and experience regarding public information on cancer prevention acquired at national level.

Action 34 : Establishment of a directory of the private organizations against cancer in Europe. Starting in 1987, the aim is to identify the numerous private bodies which in one way and another could contribute to the success of the "Europe against Cancer" programme (national leagues and associations against cancer, national anti-smoking committees, etc.).

In some countries the situation is easily defined for there is a single federation, as in the Federal Republic of Germany or the Netherlands. In other countries the situation is fragmented, as in Belgium where there are some 30 private organizations against cancer.

The directory will also indicate the tasks undertaken by the various bodies: private financing of research, informing the public and increasing public awareness of cancer prevention, or providing support for the afflicted and their families. With respect to the latter, it would be useful for victims of the disease travelling in Europe to know where to turn for help in case of need.

Moreover, private organizations already engaged in informing the public about cancer prevention will play a decisive role in the success of the "Europe against Cancer" programme. On the one hand these bodies sometimes possess considerable information resources in the form of monthly or quar-

(27) European Community Survey of Public Information Campaign 1981-83, carried out for the EEC Commission by the International Advertising Association in May 1984.

terly reviews, with a circulation of thousands, or even millions. On the other, they have had many years of experience of information campaigns and increasing public awareness : many lessons may be learned from their successes and failures.

Action 35 : Comparative survey of private and public cancer prevention information campaigns. This survey will be undertaken as soon as possible in 1987.

There are indications that messages tending to stress the positive aspects of a cancer prevention rule ("stop smoking and sweeten your breath") (28) have more impact than warnings about risk factors ("smoking causes lung cancer"). The conclusions drawn from this comparative survey will, of course, be used when designing and planning the European campaign in 1987-1988.

I.1. ACTIONS PLANNED IN 1987

In the first year the "Europe against Cancer" programme will seek to bring cancer prevention to the attention of the general public without, however, buying advertising space in the main media. This means that the budget required will be minimal - an estimated 500,000 ECU.

Action 36 : Bringing cancer prevention and the "Europe against Cancer" programme to the attention of the media. At the beginning of 1987, an advertising agency with a public relations department will be selected by public tender to bring to the attention of the media in all the Member States the European programme against cancer.

This agency will have the specific task of ensuring broad coverage by the mass media of the following events :

- Council meeting of the Ministers of Health on 15 May 1987 to approve the main lines of the Community action plan 1987-89 ;
- publication in September 1987 of a Eurobarometer poll on the attitude of Europeans attitude to cancer and its prevention ;
- broadcasts on several European television channels of a programme for the general public on cancer prevention in the autumn of 1987 ;
- organization of a large-scale meeting marking the end of the first year of the "Europe against Cancer" programme in December 1987. Plans for 1988 and 1989 will be outlined at this meeting.

On each occasion the "European Code against Cancer" will be distributed. It will be formulated in layman's terms and available in the nine Community languages.

(28) The slogan "Kiss a non-smoker and see the difference" used in some English-speaking countries is believed to have had a considerable impact, especially among young people.

Action 37 : Eurobarometer survey of Europeans' attitudes to cancer and its prevention. A survey will be carried out in March and April 1987 based on a questionnaire drawn up in close cooperation with European cancer specialists to determine to what extent and in what respect Europeans are concerned about cancer and its prevention.

The survey will be carried out by specialist institutions for the EEC Commission in the context of the customary Eurobarometer polls which have been carried out twice a year since 1974 using representative samples of the population in the 12 Member States. In all, nearly 12,000 persons aged 15 and over will be questioned orally at home, in particular as regards their knowledge of the "European Code against Cancer".

The findings of the first survey should be available in raw form early in June and the summary report in September 1987. Given the importance of the subject and the novelty of an international comparison of this type, it is likely that the findings will be analysed and commented on by scientific and medical circles, private organizations against cancer, the press, radio and television, which should facilitate the wide dissemination of cancer prevention information.

Members of the European Committee of Cancer Specialists, and the representatives of national leagues and associations against cancer could also help to spread the message and give it more impact by taking part in press conferences held when the findings of the Eurobarometer survey are published.

Action 38 : Financial contribution to television cancer prevention broadcasts for the general public. The European Community will partly finance a European television programme on the subject of "life-style and cancer" which should be broadcast on several European television channels in the autumn of 1987.

A television broadcast for the general public is the most effective way of getting the message of cancer prevention across to European citizens. In particular, it will demonstrate in a calm and agreeable manner that the great diversity in eating habits and life-styles in Europe - national and regional - is matched by a similar diversity in cancer frequency rates.

In addition, to give more weight to the diversity of national cultures, it is proposed to use an approach similar to that adopted in 1986 for the "Origins of Man" programme. It started with a common plan worked out by the eight countries involved together with a core of identical images and the final editing took place in the BBC studios in London, with presenters from the participating countries, thus resolving any language problems while respecting cultural differences. This approach, which achieves substantial savings, is favoured by the European Commission.

Action 39 : Dissemination of the "European Code against Cancer" at sports and cultural events sponsored by the European Community. Starting in 1987, the European Commission will ensure that actions within its usual information policy field will serve to promote the dissemination of the "European Code against Cancer".

Sports events with a distinctly European character, such as the European Community Tour de l'avenir cycle race, provide one of the most propitious occasions for communicating cancer prevention messages to the general public. Sport and cancer prevention is not only one of the most relevant messages - all sportsmen of note observe at least the first three European commandments : don't smoke, limit your alcohol consumption, avoid being overweight - it is also particularly persuasive for young people.

Special concerts to be given in 1987 in several European cities to celebrate the 30th anniversary of the Treaty of Rome will provide an opportunity to inform the public about the programme "European against Cancer". Money collected on these occasions will be donated essentially to other cancer prevention organizations.

Action 40 : Public meeting to mark the end of the first year of the "Europe against Cancer" programme. In December 1987 - if possible at the same time as the Heads of State and Government are meeting as the European Council in Copenhagen a public meeting characterized by a certain solemnity will mark the first anniversary of the "Europe against Cancer" programme and will serve as an occasion to announce officially the actions planned for 1988 and 1989.

Action 41 : Preparation of the actions to be carried out in 1989, "European information on cancer year". In the second half of 1987, the Commission will begin to prepare the actions to be carried out as from 1988, concentrating mainly on the information campaign for 1989, "European information on cancer year" in screening, prevention and treatment. This preparation will be carried out in conjunction with an advertising and public relations agency in close collaboration with private cancer prevention organizations and will also make use of the twenty or so Commission press and information offices scattered throughout the Community of Twelve.

I.2. PROPOSALS FOR ACTION IN 1988

As a result of the actions carried out in 1987, European public opinion will no doubt have been made aware on at least three or four occasions by the media of the "European code against cancer". However, if the professionals in the communications field are to be believed, fewer than one sixth of Europeans will have retained its message of prevention.

To strengthen the results achieved and extend them to 30% of the public, the information campaign launched in 1987 would have to be stepped up and widened in its scope in 1988. Basing itself on recommendations from both media and cancer specialists, the Commission recommends that in 1988 a "European cancer prevention week" be organized, during which the ten European prevention commandments would be disseminated by all possible means, including the purchase of newspaper, radio and television advertising space. This trial would of course, help to improve the 1989 campaign.

On the basis of the assessments provided by the aforementioned study carried out by the International Advertising Association (I.A.A.), taking account of the fact that it should prove possible to negotiate preferential terms; and in view of the special interest of the message to be disseminated, the cost of this multimedia European campaign should not exceed 7 million ECU. To this sum must, of course, be added the cost of subsidiary actions related to this European week, which are likely to amount to some 1.5 million ECU.

Proposal for action 42 : Organization of a European week against cancer which will serve as a test for the 1989 campaign for the "European information on cancer year". This European week, which could be held at the beginning of June or September, will be the high point of the 1988 cancer prevention campaign.

Advertising space in the press and on radio and television will be bought and the advertising and public relations agency assisting the Commission will put into media form the messages illustrating each of the "ten European commandments". It will, of course, be possible for these to be tailored to their target groups.

This media campaign will be accompanied by a public relations campaign involving radio and television broadcasts - if possible, on a Eurovision scale - and leading articles and reports on events related to European cancer prevention week.

The public and private organizations involved in the fight against cancer will be closely associated with the preparation and implementation of this action week. Furthermore, such private organizations may decide to use this occasion to launch fund-raising campaigns, if that is their purpose.

Finally, it goes without saying that, to achieve its full impact, this "European week" will be accompanied throughout the year by a variety of actions aimed at informing the public and increasing public awareness of the fight against cancer.

Proposal for action 43 : Increase in 1988 of the campaigns carried out in 1987 to inform the public and increase public awareness of the campaign against cancer. In the interest of both continuity and effectiveness, the campaigns carried out in 1987 should be repeated in 1988, if necessary in an amended and improved form. For example :

- Eurobarometer polls will be carried out in March - April and in September - October of 1988 to assess the impact of the campaigns carried out in 1987 and 1988 ;
- A Eurobarometer poll on the attitudes of general practitioners to cancer, its prevention and treatment will supplement, in March and April of 1988, the Eurobarometer poll carried out in 1987. Its findings, which will be widely disseminated in the medical press, will make it possible to specify the strategy to be followed in training family doctors (see Chapter 3) ;
- financial aid will be allocated for European television broadcasts aimed at making the general public aware of the fight against cancer ;
- the "European code against cancer" will be disseminated at cultural and sports events sponsored by the European Community ;
- at the end of 1988 a major public meeting will announce the opening of "European information on cancer year", in screening, prevention and treatment.

I.3. PROPOSALS REGARDING "EUROPEAN INFORMATION ON CANCER YEAR" (1989).

Launched in 1987 and consolidated in 1988, the European cancer prevention campaign should culminate in 1989 in a "European information on cancer year". This suggestion by the European Cancer Specialists' Committee was endorsed by the Commission in July 1986 and the principle was accepted at the European Council held in December 1986 in London. The main thrust of this action should be decided by the Health Ministers of the European Community meeting within the Council in May 1987. The cost of this year should not exceed 12.5 million ECU.

The actions to be carried out in 1989 would, of course, draw their inspiration from what has been done - and what has been successful - in 1987 and 1988 by way of making the public directly aware of the fight against cancer. They would also be supplemented by actions aimed at the health professions and teachers who will be able to pass on the cancer prevention message to young people and adults.

Proposed action 44 : Interesting teachers and the health professions in dissemination of the European cancer prevention commandements. Such an action will have been largely prepared in 1987 and 1988 under the "health education" section and the "training of medical staff" (III) section of the "Europe against Cancer" programme.

To involve these key persons in a coherent and effective cancer prevention strategy, the following could be used : publication of clear and accessible newsletters, dissemination of small posters on the European Code against Cancer, making available attractive and effective teaching materials, etc.

Proposed action 45 : Organization of a media campaign aimed at the general public : "Twelve nations, twelve days of action against cancer". This action would repeat - in an improved form - the 1988 "European week". Its final programme will be drawn up and implemented with the help of the advertising and public relations agency which will assist the Commission in close collaboration with the public and private organizations involved in the fight against cancer.

Proposed action 46 : Intensification in 1989 in the campaigns carried out in 1987 and 1988 to inform the public and increase public awareness of the fight against cancer. The experience gained in 1987 and 1988 will be used during the European information on cancer Year to develop and complete the work with the media and the general public started in the previous two years.

II.2. HEALTH EDUCATION

Informing and arousing the interest of the general public is one thing. To make it change its attitudes is another. Cancer prevention requires that quite a few habits acquired through personal experience or cultural tradition be changed if not given up. Obviously, such changes will not come about

solely as a result of the European campaign or the national campaigns carried out in 1987 and 1988. Nothing is more difficult to change than social habits.

Requiring perseverance and tenacity, this is a long-term fight based on awareness that the later in a person's life it starts, the less likely it is to succeed. This is why it is important to make young Europeans aware of the danger of cancer at a very early age by means of health education courses. Such a task is first and foremost the responsibility of teachers and their local, regional or national supervising authority. However, the European Community could make a major contribution if it attains the three objectives set out in the introduction to this second chapter (dissemination of the European prevention commandments ; economies of scale ; exchange of experience).

Action 47 : Establishment of a comparative survey of health education programmes in European schools. In 1987 a comparative assessment will be made of the health education courses taught in European schools, concentrating on cancer prevention.

Proposed action 48 : Drawing up of proposals to improve health education programmes in schools. In 1988, the Commission will - on the basis of the findings of the survey referred to above - put before the Council a proposal for a Resolution aimed at improving the health education of young Europeans.

There will also be an assessment of the available documentation and teaching material (textbooks, software, games and video cassettes).

Proposed action 49 : Provision of teaching material relating to health education. As from 1988 and, above all, in 1989, on the occasion of the European Information on Cancer Year, the European Community will contribute to the translation and dissemination of that teaching material deemed to be most suitable.

Finally, with the rise of television, health education is no longer addressed only to young people, but is accessible to adults as well. Some television networks, in the United Kingdom and the Netherlands in particular, have a fund of experience which can be drawn upon. This is made up, on the one hand, of programmes dealing more particularly with the European commandments on systematic screening and early detection of common cancers and, on the other, of programmes aimed at cancer sufferers and their families and devoted to methods of treatment, care, counselling, etc.

Proposed action 50 : Contribution to the financing of television health education broadcasts on the prevention and treatment of cancer. With effect from 1988 the Commission will encourage the televising of programmes on health education in line with the procedures outlined in action 38.

By means of this European information and health education campaign on cancer prevention it will be shown that twelve countries, nine languages and at least as many different cultures can combine to form a living community, close to the concerns of each of its members. This will provide a prime example of a people's Europe in action.

CHAPTER 3

TRAINING OF THE HEALTH PROFESSIONS

I. TRAINING AND THE CAMPAIGN AGAINST CANCER

The health professions, whether general practitioners, specialists or nurses, have a decisive part to play in the fight against cancer. Nevertheless, the general opinion of European oncologists is that the present situation in Europe should be improved. On the one hand there are severe shortages of specific health care workers (nurses and specialists) in the treatment field; on the other, training programmes for the health professions are not always well adapted to current needs, as can be seen from the following brief review.

I.1. GENERAL PRACTITIONERS

In the campaign against cancer, general practitioners are in the front line. The spontaneous trust which is placed in them and their continuous contacts with their patients make family doctors a cornerstone of any policy of prevention, of systematic check-ups and of early detection of cancer. Their training in these different areas is therefore decisive, and it is important that they acquire, during their studies :

- general knowledge of the diversity of cancers, of their essential characteristics, and of the most appropriate way to deal with them : prevention, early detection, or treatment. For instance, in the case of some tumours, it is prevention that must be stressed (for example, avoid lung cancer by not smoking) ; in others (such as cancer of the uterine cervix) it is systematic screening that should be focussed upon; and finally, in yet others (such as cancer of the testis) it is treatment that is the most important, particularly since it can be cured in the majority of cases ;
- familiarity with the most common cancers that a general practitioner is likely to encounter regularly in the course of his daily work ;
- particular knowledge of the preventive measures to be recommended to their patients ;
- technical know-how, just as much for the simple taking of a vaginal smear as for carrying out the simple manual methods of early detection of certain tumours, such as palpation of the breasts or a vaginal or rectal examination ;
- adequate knowledge of the population which has a high cancer risk and techniques of systematic screening available in the laboratory or in the hospital. Not knowing the latter would be detrimental to the health of patients. Insufficient knowledge of the optimal conditions of use of these techniques can be very costly for society if it means an untimely rise in prescriptions.

- general knowledge of the possibilities available for treatment and of the considerable success already achieved in the fight against cancer. An ignorance of this type of information is the origin of the taboo which stops a number of doctors from speaking openly to their patient about their disease. Misinformed, the patient may well react inadequately to the situation, thus delaying treatment and therefore risking a successful outcome.

So that the present situation can be improved, it is necessary to increase the number and quality of teaching staff or reduce the number of students, by updating course contents and, using modern teaching materials, particularly audio-visual techniques and dummies adapted for training in the manual methods of systematic screening and early detection. Finally, the initial training programmes should also take account of the fact that the family doctor is increasingly being called upon to play an active part in the home treatment of patients with certain types of cancer.

Now is an opportune moment in time for account to be taken of these ideas, because Member States are in the course of reviewing their national arrangements for the training of general practitioners in response to the directive on specific training for this group of doctors agreed by the Council of the European Communities on 15 September 1986. This Directive requires that by 1990 at the latest, Member States will introduce obligatory specific training in general medical practice of at least two years duration. Such training is additional to that of the common course contained within the six years of training which is the minimum required by the Community Directives of 1975.

I.2. SPECIALISTS AND ONCOLOGISTS

Over the last two decades there have been revolutionary changes in cancer treatment techniques, in particular the progress of chemotherapy, at the end of the sixties, the successes of conservative surgery from 1973 onwards and the appearance of combined treatments at the beginning of the seventies. With the latter, the use of surgery can often be reduced by an appropriate combination of the three main treatments currently practised : surgery, chemotherapy and radiotherapy. These techniques and their optimum combination should be known to all specialists who are called upon to treat cancer. Through adequate mastery of these recent scientific developments, certain amputations or excisions could be avoided, partly or wholly, by the use of chemo- and/or radiotherapy.

Besides, for certain cancers that are progressive, a surgical intervention may be counter productive and prejudicial to the patient. In such cases recourse should be made to another type of therapeutic strategy using chemo- or radiotherapy.

To meet this unceasing development of cancer treatment techniques, which call for a joint approach by specialists in several disciplines, a growing number of countries are setting up cancer centres in which health care workers are engaged in cancer therapy full-time. These oncologists have, moreover, often received in these very cancer centres a training which, though specialized, is also multidisciplinary, enabling them to discuss with their medical colleagues the most appropriate course of treatment. Such an approach, which has already proved its worth in several hospitals in Europe, should be evaluated with a view to its possible extension.

I.3. NURSES

Of all the health professions, it is the nurses who are the most frequently in contact with the patients. Accordingly, they play an important part in the fight against cancer, especially in the treatment field. Within the European Community the basic training of nurses responsible for general care is harmonized by Community Directives of 1977 which provide for a minimum period of training of three years.

For several years, most European countries have had to face a shortage of nurses trained in the treatment of cancer patients, at home or in hospital. Furthermore, the delicate and dangerous handling of some cancer treatments calls for a basic knowledge of special precautions, in the nurses' own interest. Here, too, a special training effort is necessary, all the more so because the course contents have to adapt to successive changes in the therapeutic field. Account must be taken also of the special training needs of nurses specializing in the nursing of terminally ill patients.

II. PROPOSED PLAN OF ACTION 1987-1989

Adaptation and improvement of training for health care workers clearly require action to be taken above all at national and regional level and even at that of the medical faculty. The European Community also has a modest but still significant contribution to make, however, in the following three areas : exchange of experience, student exchanges and working out the minimum contents of course syllabuses.

The third of these is of course justified first and foremost by the need to allow the free movement of the health professions and their freedom to settle and practice anywhere in the European Community. But it is also relevant to point out that the setting of agreed minimum contents of courses leading to these qualifications, helps to guarantee a minimum level of health care for the citizens of the Community, including those who travel within the Community, either for work or for pleasure.

On all matters of course content the Commission of the European Communities is assisted by three Advisory Committees, one on the training of doctors another on dentists and the other on nurses. Each of these bodies has set up a Working Party on Cancer Training in order to aid the Commission in preparing and implementing the 1987-1989 plan of action outlined above.

II.1. MINIMUM CONTENT OF UNIVERSITY TRAINING PROGRAMMES

There is considerable variation between European countries and sometimes even between regions within the same country, as regards training in cancer. Some countries have made - or are about to make - major efforts to adopt a systematic and integrated approach to cancer education from the start of medical studies. To this end they have set up chairs of oncology. In this system particular emphasis is placed on the need for a multidisciplinary approach.

In other countries, training in the fight against cancer is fragmented and dispersed throughout the medical course, sometimes without adequate coordination. In the general opinion of European oncologists, such a situation is no longer appropriate, but this point of view is not yet appreciated or shared by all teachers or doctors. There is therefore a need for a comparative study of existing training systems.

Action 51 : Comparative study of the systems of University training for health care workers. Starting in 1987, the Commission of the European Communities will be arranging for comparative studies on the cancer instruction given at each level of medical education : basic medical studies, specific training of general practitioners, specialists, oncologists and nurses.

The experts, who have been chosen by the Working Parties on Cancer Training (29), will submit their reports in the autumn of 1987 for examination by the Advisory Committees. These comparative studies will serve as a basis for a possible European Community action on minimum contents of training courses in cancer. To this end, the experts appointed to carry out a comparative study of existing training systems will examine the likely difficulties of implementing recommendations drawn up in 1986 by the Committee of oncologists which has been set up at the Commission of the European Communities :

"Students : there ought to be an oncology chair at all medical training centres in the Member States, offering a wide-ranging course extending from epidemiology and the principles of prevention to early detection, treatment and terminal care. The course should consist of at least 30 hours of instruction and should be centred on the 10 principal tumour sites. An oncology examination should be set in all courses at medical schools.

"General practitioners : these constitute a priority group in cancer education. In addition, they should take part in a continuous training programme for general practitioners in which they should actively participate. A periodical letter or newsheet should be considered at the national level.

"Oncologists : every Member State should recognize the specialist nature of oncology (30). The training of cancer specialists should be harmonized among the Member States. Particular attention has to be paid to the training and recognition of specialists with an overriding interest in specific types of cancer. A Community training and continuous education programme on oncology must be organized, and encouragement must be given to initiatives "to prepare courses of study for oncologists".

(29) Professor de Moura (Portugal), for basic medical training ; Professor Larra (France), for the initial training of GPs ; Dr Costa (Italy), for the training of oncologists ; Dr Lister (United Kingdom) for the training of other specialists and for the summary report.

(30) This speciality has three categories : medical oncology (notably chemotherapy), radiotherapy, surgical oncology.

At all events, the recent developments which have revolutionized, and still are revolutionizing, the whole of the oncology scene from prevention to treatment, will also change the role of health care workers in the fight against cancer. The education systems will therefore have to be adapted accordingly. The following broad lines can already be made out :

- basic medical studies will have to enable students to acquire a better understanding of recent changes and to be better informed and trained ;
- the initial training of general practitioners will have to enable them to face up to the demands of an increasingly well-informed public which wants more and more to benefit from systematic check-ups and early detection of cancer and which aspires to a competent medical follow-up after it has undergone specialist treatment ;
- the initial training of specialists, including oncologists, will have to give them a better command of combined treatment techniques and conservative surgery in the patients' own interest.

It goes without saying that the Advisory Committee on Medical Training and the experts responsible for preparing the comparative study of existing training systems will have to examine the likely difficulties of implementing these different recommendations in order to test the ground for Community action in this field.

Also in 1987, the Advisory Committee on Training in Nursing, with the assistance of a working party on cancer training for nurses, will adopt a similar approach. The Advisory Committee on the training of Dental Practitioners will also be consulted in 1987.

Proposed action 52 : Formulation of proposals for improving the organization of studies in the cancer field (initial training, general practitioners, specialists, oncologists and nurses). In 1988 and 1989 the European Commission will, if necessary, submit to the Council proposals for improving existing training in cancer for health care workers, on the basis of the conclusions from previous work, after consulting the Advisory Committees.

II.2. STUDENT MOBILITY

In the opinion of the European oncologists, it would be desirable for European students to be able to undertake part of their initial cancer studies in another European Community country, especially one of those with the appropriate experience and infrastructure. An action to promote this will naturally find its place in the Erasmus Programme which could give grants averaging 2.000 ECU for six to nine months of approved study at a university in another Member State.

In addition, to help specialist students to acquire the multidisciplinary state of mind required for good cancer treatment, they should have an opportunity to go on practical training courses in hospitals in other disciplines ; in the same way, certain students should be offered the chance to undergo training in

firms specializing in the various types of equipment and medicinal products used in the treatment of cancer (manufacturers of surgical equipment or radiotherapy apparatus, pharmaceutical laboratories).

Opportunities of this kind can already be created in the framework of the European Community's Comett Programme. This awards grants averaging 4.000 ECU annually to students wishing to do practical training in a firm in another Community country.

Action 53 : Stimulation of mobility of medical and nursing students. Starting in 1987, Comett grants will be awarded to oncology students to enable them to undergo practical training in a specialist firm based in another Community country. As soon as it is adopted by the Council, the Erasmus programme will also be open to medical students and student nurses carrying out a period of oncology study in another country of the European Community, provided that this period of study is fully recognized by the home-university.

II.3. JOINT PREPARATION AND EXCHANGE OF TEACHING MATERIALS

In the opinion of the Working Party on Cancer Training for doctors owing to the newness of the programmes of education and training in cancer and the rate of change in this field the audiovisual aids used are often the products of individual initiative and deserve to be made more widely available and placed at the disposal of other medical faculties. In addition, in order to teach future general practitioners the manual methods of early detection of certain cancers (palpation of the breasts or vaginal or rectal examination), suitable models with common characteristics should be made available. In these two areas, the European Community will be able to promote exchanges of experience.

Proposed action 54 : Joint preparation and exchange of teaching materials and testing of this during the "European information on cancer Year". From 1987 onwards, on the basis of the recommendations of the Working Party on Cancer Training the Commission will promote the exchange of experience in the field of teaching materials in 1989, on the occasion of the "European information on cancer Year", certain equipment developed in faculties of medicine will be made available for testing.

II.4. EXCHANGE OF EXPERIENCE ON CONTINUOUS TRAINING

Continuous training in the fight against cancer is of fundamental importance to all categories of health care workers. This is a need which is well appreciated above all by those who have received initial, elementary or advanced training in oncology. But there are plenty of family doctors and district nurses who have never received any basic training in oncology in the course of their studies. The crucial problem is to motivate these health care workers, especially the older ones, so that they obtain the basic knowledge they lack and to update it regularly throughout their working lives. This task will of course be easier if the teaching materials used are simple, attractive and appropriate to the needs of these categories of health workers. Here, too, the European Community will be able to make a useful contribution by promoting the exchange of experience. In addition,

existing practices will be evaluated with a view to their adaptation in other Member States, especially those to do with :

- the regular information of general practitioners. In France, for example, since 1986, this is already carried out by means of an information bulletin, accessible by videotext ; the information is selected and put into shape by a committee of oncologists with the help of medical journalists ;
- the continuous training of oncologists at the European School of Oncology in Milan and the European School of Haematology in Paris.

Action 55 : Exchange of experience on continuous training. Starting in 1987, the European Commission will promote the exchange of experience in the area of continuous training in cancer, in particular by way of aid to the translation and dissemination of adequate teaching materials.

In addition, resulting from the information revolution, within the European Community several teams are working at perfecting "expert systems". Today, programmes are being developed, aimed at assisting decision making, by specialists in one speciality - oncology, in the present case - working in close collaboration with a group of top level information specialists. The object of this exercise is to transfer the available knowledge in oncology to a programme with which the user can have a dialogue, either to improve his training, or to permit the selection of the most appropriate diagnosis or treatment.

Proposed action 56 : Development of common computer programmes for expert medical systems for cancer. Within the context of the research programmes, in particular the biotechnology programme (1986-1989), the European Commission will cofinance certain projects dealing with the development of common expert systems in the field of oncology.

CHAPTER 4

CANCER RESEARCH

The cancer patient is now beginning to be aware that he is not condemned without reprieve. He knows that his chances of surviving longer are genuine and increasing year by year, and he rightly attributes this to the progress that has been made in medical research. Thanks to this progress it is now possible to save almost half of the patients, compared with a quarter thirty years ago. These are, of course, general figures, since the prognoses of development of a cancer varies considerably: though extremely gloomy for some tumours, such as that of the pancreas, it is most favourable for other cancers, such as those of the skin.

Moreover, most experts consider that by the year 2000 it should be possible to reduce the cancer mortality rate in Europe by another 15%, even if the prevention policy advocated above is implemented only to a very small extent. That is a good indication of the value, but also the limits, of these measures, which have to be complemented too by a vigorous revival of research.

The practical achievements of research in Europe do not come up to the level of the ideas and conceptions which have emerged from its laboratories. It is a paradox, though, that the majority of anti-cancer substances produced by biotechnological processes today are made by American laboratories, when one of these revolutionary manufacturing processes - cellular fusion - was discovered in France by Georges Barski, and applied in England to monoclonal antibodies by Kohler and Milstein, who were awarded the Nobel Prize in 1984. We perhaps have an initial explanation of this disparity if we compare the financial resources employed on each side of the Atlantic.

It is, admittedly, not easy to draw up a balance-sheet of the financial support given to cancer research by Europe, since account has to be taken both of national and Community programmes and research activities which are not directly connected with cancer but which contribute indirectly to the solution of the problem.

However, we can roughly estimate the respective scale of funds allocated if we compare the financing of the whole of medical research: 5 000 million dollars per year for the National Institute of Health in the United States as against 1 500 million dollars per year in the Europe of the Twelve. Besides that, since cancer research has been the subject of a major American national programme since 1971, it can be concluded that the difference in this particular field is even greater than is indicated by the overall figures.

Over the next three years, European cancer research will receive financial support in the following framework:

- the proposal for a fourth programme to coordinate medical research (1987-1989), sent to the Council at the end of 1986, which the Commission proposes should be allocated 37 million ECU, including 11 million ECU for cancer research;
- the fourth programme of medical research in the industries of the ECSC (1982-1987) was allocated 9 million ECU of which 1 million was for cancer; and the proposed fifth programme (1988-1991) which will be sent to the Council in 1987. This could cover 12 million ECU including some 3 million ECU for cancer according to the present assumptions of the Commission;

- the proposal for a first programme of research in the field of predictive medicine (1987-1989), which will be sent to the Council at the beginning of 1987;
- the programme of research in the field of radiation protection (1985-1989), allocated 58 million ECU to cover the whole period, 5 million ECU of which could be assigned to cancer research in 1987-1989;
- the programme of research in the field of biotechnology (1986-1989), allocated 55 million ECU, including 4 million ECU in connection with cancer research (1987-1989);
- the programme of research into the environment (1982-1990), which was allocated 55 million ECU, about 1 million ECU of which concerns cancer.

In reality, the total amount committed to research is considerably higher; in the case of joint financing the total sum corresponds to at least twice; in the case of coordination it may be up to thirty times more. Overall, the Community research projects on cancer will coordinate work covering more than 300 million ECU from 1987 to 1989.

If financing were the only reason why Europe is lagging behind, the remedy would be easy to define if not to apply. But Europe's backwardness results chiefly from structural causes, in particular from the fragmentation of the national programmes and from the ensuing inadvertent duplications of effort, at a time when both human and financial resources are limited. The pooling of these resources by way of European cooperative projects is obviously a response which is as necessary as it is appropriate.

What has to be done in the first instance is to ensure technology transfer between laboratories in different countries, in order to give the initial stimulus to lasting international collaboration and to integrate the best European laboratories in a cancer research network. The object is therefore to create a sort of institute without walls which will lead to a true European cancer research area. For this reason, the measure which is one of the most urgently required is that of increasing the mobility of cancer research workers in Europe.

Proposed action 57: European grants to encourage the mobility of cancer research workers. In the framework of the proposal for a medical research programme (1987-1989) which it sent to the Council at the end of 1986, the Commission of the European Communities recommends that every year study grants averaging 20 000 ECU p.a. should be awarded to fifty research workers for their cancer research training at a laboratory in another country of the European Community.

By promoting the movement of men and ideas among European laboratories in this way, the European Community will promote the transfer of scientific and technological information at the university and industrial levels. At the same time it will create a European state of mind which will help to make Europe more than just an economic entity and so will slow down the "brain drain" to the United States. Links will at last be forged between the European laboratories, which is one of the prerequisites for setting up a network of further lasting cooperative ventures in all areas of cancer research.

1. RESEARCH TO IMPROVE THE PREVENTION, SCREENING AND DETECTION OF CANCER.

A. Improvement of information systems regarding the frequency and nature of cancers

One cannot have good quality cancer research without a suitable information system. The prevention programme in the United States was originally based on the "Connecticut Cancer Registry" which has undertaken the gathering of cancer information from 1985 onwards. The first register in Europe was set up in Denmark in 1943, and that has enabled this country to have an exceptional knowledge of cancer trends since the Second World War.

Today in the European Community there are cancer registers at several levels. Some concern a town, others cover a region and still others collect data at national level. This great diversity makes it difficult to compare data and make use of them, and registers on a national scale do not exist in most European countries. In France, for example, there are cancer registers in only four out of the hundred departments in that country, (Doubs, Calvados, Isère and Bas Rhin).

Epidemiology at the European level presupposes harmonized recording of all cases of cancer in the Community.

It is, therefore, necessary to establish a basis of regulations allowing researchers in the Member States to carry out epidemiology studies using cancer records. The legislative restrictions on keeping such records should therefore be reduced so as not to hinder epidemiological research. Also, in certain European countries, work on occupational cancers has had to be interrupted owing to the rules of confidentiality in force which prohibit all prospective studies in this field. These rules must be adapted whilst preserving the strictly confidential nature of medical information.

Action 58: Comparison of existing cancer registers and recommendations for their minimum contents and conditions of access to them. In 1986 the Commission of the European Communities sent a questionnaire to every cancer registry in the Member States with a view to carrying out a comparative analysis. The results will be studied in 1987 in order to be able to determine the scope of the data gathered and make it possible to improve their comparability and reliability. In addition, a feasibility study will be started in 1987 with a view to setting up a European network of cancer registers in order to create a European database on the prevalence of cancers.

Lastly, in 1988 a conference will be held on improving the system of recording cancer data, in collaboration with the International Agency for Research on Cancer (IARC) and the International Agency for Cancer Registries. If necessary, proposals aiming at harmonizing the data gathered could be established.

B. Epidemiological research to improve prevention

Preventive measures have to be based on epidemiological research, i.e. on the circumstances surrounding the appearance of the disease according to the characteristics of the individual and of his environment. The items of information which can be extracted permit the detection of possible causes, the follow-up of trends in the development of pathology, and the planning and evaluation of the effect of intervention.

European cooperation would have the advantage of access to a more numerous population, which would increase the validity of its conclusions, especially for the least common tumours. It would also permit comparisons between groups of people whose standard of living is similar but whose social and eating habits vary quite considerably between Northern and Southern Europe.

Proposed action 59: Launching European coordination of medical research on food and cancer. This is the area in which epidemiological data are the most uncertain, as is shown by the width of the range of estimates of Doll and Peto, according to whom 10% to 70% of cancer deaths are food-related.

In 1987 a synthesis carried out in collaboration with the International Agency for Research on Cancer (IARC) will be completed, in order to determine the current level of epidemiological knowledge so as to identify research priorities and compare and harmonize methods.

This orientation phase should make it possible to bring to fruition the efforts on particular aspects of the relationships between food and cancer. A certain number of priority themes have already been identified, in particular the role of food in atrophic gastritis (the preliminary phase of the development of stomach cancers) and the role played by the consumption of food fibre and other food factors in connection with cancer of the colon. Close attention must equally be given to nutritional factors insufficiently studied up to now but for which preliminary findings exist to a variable degree, as has been explained in the section on prevention: fats (especially in postmenopausal women), vitamins, mineral elements, nitrites, etc.

Proposed action 60: Stepping-up of European research on occupational cancers. Since the early 1950s lung cancer among workers in the iron mines and certain cancers among workers in the steel industry have attracted the attention of researchers. Despite the reduction in these activities over the last decade, the number of exposed workers in the coal and steel industries is still of the order of 2 million. The 4th ECSC Programme (1982-1987) has stepped up work on lung cancer among welders and on cancers affecting colliery and coking-plant workers. The 5th ECSC Programme (1987-1991) is going to extend this co-financed research on lung cancer by work on the identification of the underlying carcinogens.

For its part, the Commission Programme on the Environment (1982-1990) will provide support for work on the carcinogenic effects of asbestos and other materials such as glass fibre.

Lastly, for the first time since it was launched in 1978, the medical research programme provides for the evaluation of epidemiological methods applicable to cancer-linked occupational hazards, starting from a critical study of results published in other countries. In particular, it is advisable to draw on methodological information from research carried out in Canada at 15 industrial sites and on exposure to 200 chemical substances.

Action 61: Continuation of the co-financing by the European Community of research on the prevention of radiation-induced cancers. Under the radiation protection programme (1985-1989), work is to be completed on retrospective epidemiological surveys on persons who have been given radioelements emitting alpha particles. An example is Thorotrast (thorium oxide based), used between 1929 and 1950 as a radiographic contrast agent for blood vessels and which is responsible for tumours of the liver. Similar research is in progress on Radium 224 which was formerly used in the treatment of certain inflammations of the vertebrae (spondylitis) and which is responsible for bone cancers.

However, the overriding preoccupation at present concerns the effect of low radiation doses, whether from the use of radioelements for medical purposes, natural environmental radiation or accidental radioactive pollution.

Exposure to natural radiation comes under this heading. Radon, a radioactive rare gas resulting from the disintegration of radium, may sometimes occur in abnormally high quantities in certain locations, by virtue of the geology (granitic rocks) and the type of construction (impervious premises). A feasibility study should be carried out to examine the possibility that it may play a role in the incidence of pulmonary tumours.

The recent accident at Chernobyl has revived interest in epidemiological research in this field. However, we must not pin too much hope on epidemiological research alone as a means of tackling the problem of the effects of low doses. Working from theoretical calculations on carcinogenicity through irradiation and extrapolating from data on heavy irradiation, it is indeed possible to advance the theory that, over 20 years, the number of additional recorded cases of cancer attributable to this accident (in the Community of the Twelve) could be between 1 000 and 3 000. At first sight, this would appear to be an appreciable figure. However, the realization that, over the same period, this population of 370 million inhabitants will be affected by more than 70 Million cases of cancer serves to put the phenomenon into proportion. This example is a good illustration of the difficulties inherent in assessing the effects of low doses of ionizing radiations.

Action 62: Continuation of cofinancing by the European Community of research on carcinogenic factors in the environment. From 1987 to 1989, in the context of the research programme on the environment (1982-1990) work will be aimed at rapidly detecting carcinogenic substances among the innumerable pollutants in the environment. The work covers improved detection of mutagenicity in microbial cultures, of the mutagenicity of suspect substances and the development of chromosome deterioration tests. All these phenomena are potentially carcinogenic.

Proposed action 63: Launching of European coordination of medical research on cancer and reproduction. Since 1978, European registration of congenital diseases in the newborn has made it possible to collate statistics and carry out enquiries into birth defects. During 1987-1989 attempts will be made to establish relationships with the later development of cancers in children suffering from congenital diseases. The confirmation of a link between tumours and congenital abnormalities would help to identify certain carcinogenic factors and their mechanisms of action.

Another area of research is biological monitoring of certain populations exposed to the mutagenic effects of environmental factors, with the aim of seeing whether a significant variation can be detected in the frequency of congenital diseases where it is possible to make a diagnosis during the first months of life.

Proposed action 64: Launching of European coordination of medical research on passive smoking. From 1987, the work carried out in this field will be brought together with a view to guiding future work. Attempts will be made to devise a means for quantitative evaluation of passive smoking, which is difficult to measure objectively. Help will be sought from the International Agency for Research on Cancer (IARC).

C. Research to improve screening and diagnosis

Two fields of research will have a particular influence on the future of cancer screening: automated tissue analysis and developments in medical scanning.

Proposed action 65: Continuation of European coordination of medical research on automated tissue analysis. A consistent early detection policy implies an enormous number of different biological analysis: smear reading, searches for viruses and characteristic proteins, histological examinations or chromosome analysis for tumour diagnosis.

The existing analysis laboratory infrastructure is not adequate to meet the foreseeable growth in demand. For instance, in the United Kingdom three million vaginal smear tests are performed every year to detect cervical cancer. This is not enough, however, since a systematic examination every three years of the population at risk implies at least a doubling of this figure. The situation is similar in the other European countries, where it is estimated that 35% overall of the women concerned ask to be followed up. If all the women at risk wished to benefit from preventive medicine, then the whole system would collapse.

And yet the observation of a preparation under a microscope means a great deal of work for a qualified specialist, hence the idea of adding an automatic system to scan the preparation, a video camera and a computer analysis system of the observed image has made progress, for both chromosome examinations and more general cell study.

The automation of chromosome analysis (for example to identify translocations) is essential not only in most leukaemias (diagnosis, prognosis, treatment) but also in many solid tumours. The examination of tissue samples under the microscope will only reveal a small number of the dividing cells, making manual methods very time-consuming.

Automated cytology (study of cells) has been developing rapidly, especially for detecting cancer of the uterine cervix at the pre-clinical stage in patients at risk. There are three prototype specialized diagnostic machines currently on the way to being marketed in Europe (in the Netherlands, Germany and the United Kingdom) and they should soon be available. This equipment provides an excellent screening tool but it detects more suspected cases than true positives. There is a need, therefore, to test, compare and validate the results and to develop similar systems for other cancers; another diagnostic machine, more multipurpose in character, is being tested in France.

Proposal for action 66: Continued European coordination of research on imaging in medicine. Since the discovery of X-rays by Wilhelm Roentgen in 1895, classical radiography has made enormous strides thanks to the computer. From a series of examinations made from different angles, computer image processing can build up a three-dimensional picture of the X-ray subject. This is the scanner method (tomodensitometry) first developed in 1975 by the British engineer G.N. Hounsfield (Nobel Prize). This makes it possible to reconstitute by calculation a series of cross-sections through the organism being examined in any plane chosen by the operator (tomography), allowing the shape and location of a tumour to be identified extremely precisely.

The reconstitution of images in several dimensions can be based on information derived from a wide variety of matters such as magnetic properties (Nuclear Magnetic Resonance or NMR), the radioactivity of short-period elements (Positron Emission Tomography or PET) or Tomoscanning with photon-emitting elements (Single Photon Emission Tomography or SPET).

In NMR, the living organism is placed in a magnetic field which particularly affects the nuclei of hydrogen atoms in the subject, moving them from their initial position. On returning to it, each nucleus emits a weak electromagnetic signal which, analysed over the whole subject, enables a spatial reconstruction of the positions of the atoms and hence the shape of the tissues. Furthermore, depending on the structure of the molecule in which a hydrogen atom is situated, the signal will vary and reveal information about the chemical composition of the tissue. This makes it possible to distinguish grey matter in the brain from white. The signals emitted also depend on intermolecular forces and the speed with which a molecule is moving, allowing measurement of temperature (thermal excitement) and flowrates (blood flow in blood vessels, for example).

Compared with X-ray scanning, NMR can make much finer distinctions between tissues and in particular separate tumour tissue from surrounding soft tissue (inflammation). Resolution of size is also more accurate, so that instead of centimetre scales as in radiography it is possible to achieve millimetre scales.

Existing NMR appliances are manufactured in small numbers and often on a prototype basis; such equipment has yet to evolve considerably in the years ahead, and it is therefore necessary to test and compare existing systems and improve their resolution. That is the objective which the European Community has set for the period 1987-1989.

Positron Emission Tomography (PET) is based on a different principle: a living body is injected with short-lived isotopes (for example, oxygen-15, nitrogen-13 or carbon-11) that emit positive electrons, and their distribution is determined by a scanner. This technique produces pictures of exceptional quality; here too, the equipment used is extremely varied, consultation between users will make it possible to compare the quality of apparatus under development.

II. RESEARCH ON CANCER THERAPY

For the general public, this is the main objective of cancer research. While acknowledging the major importance of this aspect and the urgent need for effective treatment, it should not be overlooked that prevention, in the short term, and an understanding of the mechanisms of carcinogenesis, in the long run, will exert an even greater influence on public health.

A. Conventional treatments

Thanks to the development of medical imaging techniques, such a long-established method of cancer treatment as surgery, which was practised as early as the 17th century, can now be used at a much earlier stage in the development of a tumour and, above all, with much greater precision. Ablations or amputations that were regarded as inevitable only a few years ago can thus now be avoided and replaced by microsurgery which encroaches much less on the integrity of the body.

Radiotherapy developed very rapidly at the beginning of the twentieth century after the discovery by Roentgen of X-rays in 1895 and of radioactivity by Becquerel in 1896. From 1900, several hospitals were using irradiation in therapy. The material used has evolved enormously, especially regarding its accuracy of use and its safety, as much for the patient as for the operator.

Chemotherapy was born after the Second World War with nitrogen mustard, a derivative of the poison gas and which had some effect in leukaemia cases. A long series of products having different specific properties has been developed since then: Methotrexate (1948), Actinomycin D, etc., right up to the most recent, viz. the derivatives of platinum (1976) and Ellipticin (1982).

Since the beginning of the seventies, good progress has been made by the combination of several forms of chemotherapy and by judicious association of three main techniques: surgery, radiotherapy and chemotherapy.

Project proposal 67: Strengthening of European coordination of medical research on control of multicentre therapeutic trials. To test the value of an anti-cancer treatment thought to be beneficial, it is important to arrange for a proven methodology which allows for unambiguous results to be reached. In this respect a determinant role is played by the different therapeutic protocols which set out not only the ways in which the procedures will be followed but also the importance of the dosages used. These choices are made by a multidisciplinary team composed of a surgeon, a radiologist and a clinical pharmacologist. Evidence shows that it is advisable to register these protocols carefully, above all when they are new, in order to evaluate better their effectiveness. Such a control of therapeutic trials will be all the more useful since it covers as wide a selection of diseases as possible, and in accordance with harmonized methods of registration. The European dimension is essential in this respect.

The European Organisation for Research and Treatment of Cancer (EORTC) was set up in 1962 and is a non-profit-making body which plays a key role in the coordination and exploitation of European research on therapeutic trials. At the end of 1985 it already had at its disposal a data bank comprising the clinical protocols used for 30,000 patients distributed among the different anti-cancer centres and hospitals which belong to this EORTC network; each year 5,000 new cases are registered and 5,000-10,000 previous cases continue to be followed up.

It was therefore logical to rely on the undisputed experience of EORTC with regard to the experimental and clinical bases for cancer treatment. The support from the European Community covers three topics:

- Computerized network: the setting-up and the maintenance of the data-processing network "Eurocode", which because of its low cost will allow easier access to its valuable clinical data banks for oncologists and which must create a new spirit of communication among them.
- Quality control: verification of the reliability of the transfer of data from the clinical case-notes to the computer, as well as of the correct applications of therapeutic protocols.
- Coordination: improvement of coordination between EORTC and the different national groups active in clinical research matters, in order to consider joint actions.

B. New therapeutic issues in molecular biology and biotechnology

Moreover, as a result of the biotechnological revolution which began in the early 1970s, primarily in the USA, a new range of anti-cancer drugs has appeared over the last few years, the modifiers of biological responses, amongst which are interleukin 2, which has shown some very promising results with certain types of cancer, alpha interferon, which can cure nearly 90% of cases of a particular type of leukaemia ("Hairy Cell" leukaemia) which previously was very difficult to combat, gamma interferon, which seems effective against certain types of solid tumour, and another molecule, the tumour necrosis factor (TNF). All these molecules, and many others too (lymphotoxin, necrosin, etc.) are currently being investigated very closely and some important developments can be expected in the next few years.

Other substances belong to the group of differentiation factors which seem to allow cancer cells to mature, which has the effect of making them return to a non-expressive state.

Finally, monoclonal antibodies - which are highly specific for the antigen against which they are formed - can be labelled by a radioelement, to localize a cancer at an early stage by means of a scanner. They can also be used to modify the development of certain cancers (antibodies which either inhibit tumour growth factors or inhibit acceptance of these growth factors by receptors). Lastly, they can be coupled with a substance of high cellular toxicity which can destroy cancerous cells without damaging normal cells; this is targeting of drugs.

Unfortunately, to date most of the industrial developments in the field of new biotechnological anti-cancer drugs are not in Europe but in the USA. Medical and biotechnological research in Europe should therefore meet this challenge, which is not only medical but also economic.

Action 68: Co-financing of a European network of data banks for cell cultures producing monoclonal antibodies. The European Community's biotechnology programme has undertaken to promote the establishment of a hybridoma collection network (to synthesize monoclonal antibodies). In March 1986 the CERDIC (European Centre for Documentary Research into Immunoclonal) was set up in Nice. This centre is the European arm of the international organisation known as the Hybridoma Data Bank (HDB).

It has been set up because European laboratories often find it difficult to procure the living material they need for their experiments and in particular the cell lines producing monoclonal antibodies needed for the targeting of anti-cancer drugs. This material is available in collections some of which are well known and some not, with the result that a data network is needed.

Action 69: Co-financing by the European Community of research into genetic engineering and protein engineering for the manufacture of anti-cancer drugs. Activities of this kind are being conducted under the 1986-1989 biotechnology programme. Cloning consists of introducing into a culture cell the genetic code of an interesting protein so as to make it in large quantities cheaply and without danger. The capability already exists to make certain interferons, several interleucins, TNF and a substance of embryonic origin (Mullerian inhibiting substance) which might be capable of arresting the development of cancer of the ovaries.

The expression of a cloned protein can in theory be effected very cheaply in a microbial cell such as the colon bacillus (Escherichia coli). In practice there are many difficulties involved because the microbial cells are incapable of ensuring, after transcription of the protein, certain modifications essential for its activity (glycosylation, for example).

The aim of this aspect of the biotechnology programme is to develop in the European laboratories the expertise which will enable them to perfect the cloning of any biological substance. The benefit for cancer research is therefore indirect but very real.

Once the protein has been cloned it must be manufactured in large quantities. The problem also arises for monoclonal antibodies. The biotechnology programme therefore also funds work on the large-scale culture of animal or human cells.

Furthermore, by combining physics (diffraction of X-rays), biochemistry and information technology, it is now possible to produce a spatial representation of the structure of a protein molecule on a computer screen. By this means a parallel can be established between the molecular structure and the biological activity of a protein. It will also be possible to predict what change to a molecule would increase its biochemical and biological activity. The ambitious target of protein engineering is thus to synthesize molecules of greater performance than those occurring in nature. The application to cancer will be through the study of the relationships between the activity of anti-cancer molecules and their spatial structure.

Project proposal 70: Co-financing by the European Community of research on the targeting of cancer-killing drugs. This project will be carried out under the predictive medicine programme which the European Commission will send to the Council in 1987.

Predictive medicine aims at warning of the risk factors affecting individuals or populations, factors linked with their genetic constitution or with their environment. It lies upstream from preventive medicine but for which it prepares the way. This programme mainly involves basic research, which will be dealt with further, but it does include more applied aspects such as targeting of drugs.

The principle of targeting is simple: by coupling two molecules, a monoclonal antibody capable of recognizing a cancer cell and adhering to it, together with a substance that is toxic for cells, it is then possible to target a cytotoxic substance specifically to tumour cells and so destroy them without affecting normal cells

Developing these associations would enormously advance chemotherapy, but while the principle is simple, its practical achievement is difficult.

Project 71: Cofinancing by the European Community of research on the pharmacology of anti-tumour substances. The biotechnology programme (1986-1989) supports several in vitro pharmacology toxicology research areas, including one concerning cancer; these methods should help to speed up procedures for research on anti-tumour substances and to cast light on the mechanisms of effective drugs that are already known.

The development of in vitro pharmacology and toxicology methods has three objectives: the scientific aim is to study the activity of molecules in a more analytical manner by isolating the effect of medicines on a particular mechanism, which would make for a more precise approach to the relationship

between the structure and the activity of molecules; the economic aim is to develop a fast and cheap initial screening of the activity of new molecules which it is hoped will exhibit useful pharmaceutical properties; and the humanitarian aim is to reduce the number of animals used in pharmaceutical experimentation.

But preclinical pharmacology should also be developed in vivo. In vivo study enables certain specific techniques, such as xenografts, to come close to clinical treatment conditions. Xenografts are grafts of human cancerous tissue onto mice of a strain which has no immune defences ("nude") which do not reject the graft. A tumour of human origin will then develop and be suitable for in vivo tests which are close to the treatment conditions, owing both to the human origin of the cells and to the pharmacokinetic behaviour of the mouse, which is not too far removed from that of man. The possibility of a European project on this subject should be contemplated in the future.

Finally it is acknowledged that laboratories and pharmaceutical undertakings specializing in anti-cancer products should be able to benefit from common evaluation procedures

Proposed action 72: Harmonization of testing standards for anti-cancer drugs. Subject to the Council shortly adopting the Commission's proposals on high-technology/biotechnology drugs, there could be a common assessment procedure for the various Member States regarding new anti-cancer drugs. This should help to speed up their practical utilization. Apart from this aspect of speedier marketing, it will clearly be much easier for the pharmaceutical industry to make profitable investments in the context of the large market represented by the European Community as a whole and hence invest in less common diseases. It will also be much easier to find the experts needed on a centralized multinational basis.

III. FUNDAMENTAL CANCER RESEARCH

Until recently nothing was known of carcinogenic viruses in man, which was all the more surprising in that there were many such viruses in animals, for example leucoses (ganglionic tumours) in poultry, cattle and cats, and these were known since the beginning of the century. From 1908 the Danes Ellerman and Bang demonstrated the contagious nature of erythroblastic leukaemia of poultry, and in 1917 the German Rous produced the first proof of the direct intervention of a filterable virus in a chicken sarcoma (Rous's sarcoma). This fact met with so much incredulity that he had to wait fifty years to obtain a Nobel Prize!

Study of the genome of certain of these cancer-producing viruses (retroviruses) has enabled the genes responsible for cancer to be discovered. These are viral oncogenes, which can trigger tumours once they have been incorporated into the genome of cells in the affected animal.

These results have stimulated a reawakening of interest in research into oncogenic viruses in man. Various recent observations have raised the question of the frequent presence of a virus in cases of cancer. These viruses could thus either be the direct cause or a contributing factor. Examples which can be cited are those of the more or less close relationships between cancer of the cervix/external genital organs and the human papilloma between tumours of the lymphatic ganglions (Burkitt's Lymphoma) and the Epstein-Barr virus, between Kaposi's sarcoma and the AIDS virus, between T-cell leukaemia/lymphoma and the HTLV 1 and 2 viruses, and between liver cancer and the hepatitis B virus.

The discovery made in 1976 by the French researcher Dominique Stehelin⁽³³⁾, in collaboration with an American team, of genes in the genome of normal animal and human cells with a coding sequence similar to that of the oncogenes of retroviruses has led to a complete revision of the mechanisms of carcinogenesis. In 1982 a group of American researchers, led by the Spaniard M. Barbacid⁽³⁴⁾, showed that the activation of a human oncogene (responsible for a cancer of the bladder) was due to a mutation of an amino-acid of an oncogene, and in 1983 the same laboratory showed that a carcinoma of the breast in rats caused by a chemical agent had resulted from a specific mutation of an oncogene which always appears on the same amino-acid. The exploration of genetic aspects of very early cancers must be expanded in the future.

Project proposal 73: Co-financing by the European Community of research into the genome and human oncogenes. This project will be proposed by the European Commission as part of the preventive medicine programme (1987-1989), which will be sent to the Council at the beginning of 1987. The cellular oncogenes have important normal functions in the regulation of cellular division and differentiation. A tumour can thus be due to disturbances of external origin, such as the addition of a viral oncogene, the mutation of a cell oncogene, a chromosomal rupture separating an oncogene from its adjacent regulatory system in the DNA chain, or any other disturbance to the control system of an oncogene.

More than 25 oncogenes are now recognized, of which it is known how to identify the genetic code in certain tumours such as leukaemias and lymphomas; this is of great practical importance since the diagnosis may be more or less grave according to the oncogene concerned. Currently, of a series of more than 50,000 human genes, about 350 have been sequenced, 80 of which are pathological, which gives some sort of idea of the work still to be done before the whole of the human genome can be known. What is at stake and the means required have been compared to what was required to put man on the moon.

This enormous effort could almost be called routine if the new techniques (automatic sequencing) were not playing such an important part, since the manual methods currently available are far too slow for a task of this magnitude.

The problem of regulation of the expression of oncogenes is just as important as the inventory of the genome, and doubtless more accessible. Numerous models can be studied, starting with the simplest, (yeasts, for example, possess several oncogenes, identified by hybridization with the corresponding genes in mammals).

Another approach is research on genetic markers which show a correlation with certain pathological states. Thus the HLA system, which brought the French researcher Jean Dausset the Nobel Prize, is correlated with cancer of the throat in fishermen from the Canton region. It is hoped that other markers, like the polymorphism of restriction fragments, will be able to show yet more interesting genetic links with cancer pathology.

(33) D. Stehelin, V.E. Varmus, J.M. Bishop & P.K. Vogt, 1976, DNA related to the transforming gene(s) of avian sarcoma virus is present in normal avian DNA, *Nature* 260, 170 - 173

(34) Reddy E.P. Reynolds R.K., Santos E. & Barbacid M. 1982, A point mutation responsible for the acquisition of transforming properties by the T24 human bladder carcinoma antigen, *Nature* 300, 149 - 152

Proposal for action 74: Co-financing by the European Community of research on nucleic acid probes. This action will be included in the draft programme on predictive medicine (1987-1989).

The practical use of the data obtained on the human genome will require the development of suitable tools for the recognition of a particular gene: nucleic acid probes.

A probe is simply a copy of a gene that can be labelled by a radioactive element or any other system. The probe has a very strong affinity for matching genetic information and can combine with it in a perfectly specific manner, so as to demonstrate the presence or absence of a gene.

Systems of this kind are already operational for certain genes, but their scope has still to be extended and they need to be made more user-friendly, since at the moment they are reserved for specialist laboratories and cannot be used as a matter of course by clinical laboratories. They enable rapid determination of the oncogene in a tumour cell to be made, for example, and can thus provide valuable information in the prognosis of a possible cancer. They can also allow the detection of the genome of a virus inside a cell, and therefore for example diagnose the presence of papilloma virus in the cells of the cervix during precancerous states.

* * *

Thus the European Community is going to be engaged in a long-term multidisciplinary research effort which involves amongst others the cooperation of doctors, of biologists in nearly all the fields of basic science, and of specialists in electronics and data-handling. This is the first time that such a massive attempt at integration (multinational, multidisciplinary, multisectoral) has been made for a joint action.

The specialists will, of course, say that some particular aspect or other deserves increased resources, and rightly so. We have indeed noted some of these aspects above: nutrition, preclinical pharmacology, virology, etc. This cancer research programme will not, therefore, be in a position to fulfil all its aims in a few short years, and the effort will have to be continued beyond 1989.

CONCLUSION

If all these proposals contained in the action plan 1987-1989 are adopted, the programme "Europe against cancer" will have resulted in undoubted progress being made in the fight against cancer. It is clear that this progress will only really begin with this three-yearly programme. This action will need to be continued beyond 1989 so that the results can be confirmed and strengthened. It is also evident that the actions undertaken and the results obtained will have to be kept under continuous review throughout the three years.

Action 75: Regular evaluations of this plan of action 1987-1989 will be carried out with the aid of the European Committee of cancer experts, and an overall assessment made in 1989 with a view to its being sent to the Council, the European Parliament and the Economic and Social Committee.

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The totality of those 75 actions or proposed actions contained in this action plan 1987-1989 details the European Community's contribution to the implementation of the programme "Europe against cancer".

As concerns cancer prevention (actions or proposed actions 1 to 33), the Council is invited to take note of the actions already underway or which will be undertaken as from 1987, and is requested to adopt the proposed actions as quickly as possible after their submission in the period 1987-1989. This is in line with the resolution adopted on 23 July 1986 concerning a programme of the European Communities on prevention ⁽³⁵⁾.

In the field of cancer research (actions or proposed actions 57 to 74), the Council is also invited to take note of the actions already underway or which will be undertaken as from 1987 and is requested to adopt as quickly as possible the proposed actions which have already been submitted (proposed regulation concerning a fourth research programme in medicine and health) ⁽³⁶⁾, or which will be transmitted in the near future (proposal concerning a research programme in predictive medicine).

Finally, the Council is requested to adopt as quickly as possible the attached proposal on the chapters "information of the public" and "training of the health professions" contained in the programme "Europe against cancer".

(35) O.J. C184, 23.7.1986, p.19

(36) COM (86) 549 final of 29 October 1986

Proposal for a
COUNCIL DECISION

adopting an action plan 1987-1989 on information of the general public and
training of the health professions in the context of the programme

"Europe against Cancer"

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular article 235 thereof,

Having regard to the proposal from the Commission (1),

Having regard to the opinion of the European Parliament (2),

Having regard to the opinion of the Economic and Social Committee (3),

Whereas, pursuant to Article 2 of the Treaty, it is the Community's task to promote throughout the Community a harmonious development of economic activities, a continuous and balanced expansion, an increase in stability, and an accelerated raising of the standard of living ;

Whereas the European Councils held in June 1985 in Milan and in December 1985 in Luxembourg underlined the advantages of launching a European programme against cancer ;

Whereas the European Council in December 1986 in London decided that 1989 should be the European Information on Cancer Year ;

(1) OJ

(2) OJ

(3) OJ

Whereas the Council has adopted several decisions concerning research in medicine and health (4), and a proposed regulation in the same field for the period 1987-1989 has already been sent to Council (5) ;

Whereas the Council and the representatives of the Governments of the Member States, meeting within the Council have adopted a resolution on a programme of action of the European Communities against cancer (6), which is concerned principally with cancer prevention ;

Whereas the proposed texts or those already adopted are an important part of the programme commonly called "Europe against Cancer", which is a follow up to the abovementioned conclusions of the European Council ;

Whereas, within the context of the said programme, the proposed texts or those already adopted should be completed by a number of actions in the field of information of the general public and training of members of the health professions;

Whereas the actions which have already been proposed or established will only have their full value when they are accompanied by actions covering all members of the population ;

(4) Decision 78/167/EEC, OJ No L 52, 23.2.1978, p.20
Decision 78/168/EEC, OJ No L 52, 23.2.1978, p.24
Decision 78/169/EEC, OJ No L 52, 23.2.1978, p.28
Decision 81/21/EEC, OJ No L 43, 13.2.1981, p.12
Decision 82/616/EEC, OJ No L248, 24.8.1982, p.12

(5) OJ

(6) OJ No C 184, 23.7.1986, p. 19.

Whereas it would be advisable to reduce the production and consumption of tobacco in the European Community, and at the same time to organize Community campaigns to increase public awareness of the campaign against smoking ;

Whereas it would be advisable to encourage the consumption of agricultural products with recognised beneficial effects on health and the prevention of cancer, such as fresh fruits and vegetables or cereals with a high fibre content;

Whereas it would be advisable to make the public aware of the campaign against carcinogenic agents;

Whereas it would be advisable, during the European Information on Cancer Year, to organize and promote a programme of events and activities, especially designed to increase the awareness of the public, teachers and members of the health professions regarding the campaign against cancer;

Whereas pooling efforts, resources and experience is the best way to ensure success in the campaign against cancer ;

Whereas duplications of effort should be avoided by the development of common basic information modules for the public, and for the training of members of the health professions, as well as the promotion of exchanges of experience ;

Whereas the Commission has drawn up a general action plan in the field of information of the general public and training of members of the health professions, the details of which are set out in the Annex ;

Whereas the Treaty does not provide specific powers to these ends,

HAS DECIDED AS FOLLOWS:

Article 1.

In the context of the action plan set out in the Annex in the field of information of the general public concerning cancer, and the training of members of the health professions, the actions described in Part A of the Annex are hereby adopted for a period of two years from January 1988, as a complement to the "prevention" and "research" chapters of the programme "Europe against cancer".

Article 2.

The Commission shall be responsible for the implementation of the action described in the Annex.

Article 3.

The estimated amount of the Community contribution necessary for the action described in Part A of the Annex in 1988 and in 1989 is 22 million ECU.

Article 4.

The Commission will inform the Council of the state of progress of this work, and will submit to it, as well as to the European Parliament, a report on the accomplishment of the action plan 1987-1989, accompanied by appropriate proposals for the period beginning in 1990.

Done in Brussels

on

For the Council

The President

A N N E X

A. ACTIONS ADOPTED UNDER THE PRESENT DECISION

I. INFORMATION OF THE PUBLIC

From 1988 :

- A1 : Organization in 1988 of an European week against cancer to be used as a test campaign for the "1989 - European Information on Cancer Year"
- A2 : Intensification in 1988 of the campaign carried out in 1987 to inform the public and increase public awareness of the campaign against cancer
- A3 : Provision of teaching material relating to health education from 1988
- A4 : Contribution to the financing of television health education broadcasts on the prevention and treatment of cancer from 1988
- A5 : Interesting teachers and the health professions in 1988 in dissemination of the European cancer prevention commandments in 1989 "European Information on Cancer Year"
- A6 : Organization in 1989 of a media campaign aimed at the general public : "Twelve nations, twelve days of action against cancer"
- A7 : Intensification in 1989 of the campaigns carried out in 1987 and 1988 to inform the public and increase public awareness of the fight against cancer

II. TRAINING OF THE HEALTH PROFESSIONS

- A8 : Joint preparation and exchange of teaching materials, from 1987, and testing of this in 1989 during the "European Information on Cancer Year"

B. ACTIONS TO BE TAKEN BY THE COMMISSION IN THE EXERCISE OF ITS POWERS OF MANAGEMENT OR INITIATIVE

I. INFORMATION OF THE PUBLIC

- B1 : Establishment in 1987 of a directory of the private organizations against cancer in Europe
- B2 : Comparative survey in 1987 of private and public cancer prevention information campaigns

- B3 : Establishment from 1987 of a comparative survey of health education programmes in Europe schools
- B4 : Bringing cancer prevention and the "Europe against cancer" programme to the attention of the media from 1987
- B5 : Eurobarometer survey in April 1987 of Europeans' attitudes to cancer and its prevention
- B6 : Financial contribution to television cancer prevention broadcasts for the general public from 1987
- B7 : Dissemination from 1987 of the "European Code against Cancer" at sports and cultural events sponsored by the European Community"
- B8 : Public meeting at the end of 1987 to mark the end of the first year of the "Europe against Cancer" programme
- B9 : Preparation from 1987 of the actions to be carried out in 1989, "European cancer prevention Year"
- B10 : Drawing up of a European resolution on health education in schools from 1988

II. TRAINING OF THE HEALTH PROFESSIONS

- B 11 : Comparative study, from 1987, of the systems of university training for health care
- B 12 : Exchange of experience on continuous training from 1987
- B 13 : Stimulation of the mobility of medical and nursing students from 1987
- B 14 : Formulation of proposals for improving the organization of studies in the cancer field from 1988

Annex addressed to the budgetary authority

FINANCIAL SHEET

1987-1989 ACTION PLAN "INFORMATION-TRAINING"
FOR THE "EUROPE AGAINST CANCER" PROGRAMME

1. BUDGET HEADING

New item to be determined as part of the new nomenclature. A new heading "the fight against cancer" would have to be created.

2. LEGAL BASIS

Article 235 of the Treaty establishing the EEC.

3. PROPOSAL FOR THE CLASSIFICATION OF EXPENSES INTO OBLIGATORY/NON OBLIGATORY

Non compulsory expenditure.

4. DESCRIPTION AND JUSTIFICATION OF THE ACTION.

4.1 Description of the action : see annex to the proposal for a decision

4.2. Justification for the action :

- In June 1985 at Milan and in December 1985 in Luxembourg, the European Council stressed the importance of launching a European action programme against cancer.
- In July 1986, a Resolution on the prevention of cancer was adopted by the Council and the representatives of the Governments of the Member States meeting within the Council (OJ C 184, 23 July 1986).
- In November 1986, the Commission sent to the Council a draft Regulation (COM(86) 549 final, 29 October 1986) relating to a fourth research and development coordination programme in the field of medical and health research (1987-1989).
- This draft Decision adds an "information-training" action plan to the existing "prevention" and "research" facets. It likewise covers a number of special operations to be undertaken in response to the conclusions of the European Council held in London in December 1986, which declared 1989 "European Information on Cancer Year".

5. NATURE OF THE EXPENSE AND MEANS TO CALCULATE IT

- Cost of the "information-training" action plan for 1988-1989 : 22 million ECU.
- This money will be used to finance missions, preparatory studies and seminars, exchanges of experience, contributions to the carrying out of television broadcasts, the making available of teaching materials, public relations campaigns, public information campaigns including the purchase of media space. An important part of the expenses are foreseen for this latter action (see evaluation given in chapter 2 Par. 1 of the Communication COM (86) 717.

6. FINANCIAL IMPACT OF THE ACTION ON THE INTERVENTION CREDITS.

6.1. Balance of credits and payments (non dissociated credits) (*)

1987	:	pm. (actions to be financed by the information budget credits)	
1988	:	Information	8.5
		Training	0.7
			<hr/>
		Total 1988	9.2 million ECU
1989	:	Information	12.4
		Training	0.4
			<hr/>
		Total 1989	12.8 million ECU
		Total 1988-1989	of 22 million ECU

6.2. Proposition of total cost of action of Community financing : 100 %

(*) The preventive actions will take place in the context of the resolution of 23.7.1986 for estimated amounts of 1.0 million ECU in 1987, of 1.4 million ECU in 1988, and 1.55 million ECU in 1989.

In addition of the medical research actions on cancer will take place in the context of the proposed regulation concerning a fourth medical research programme which should have a budget of 11.05 million ECU for the period 1987-1989.

7. FINANCIAL IMPACT OF PERSONNEL CREDITS AND CURRENT OPERATIONS

- To the staff needed to prepare and implement basic cancer "information-training" operations, it will be necessary to add the special staff connected with "European Information on Cancer Year" in 1989. To carry out this latter action personnel will be required in 1988.
- In addition, in view of the need to speed up endeavours in the field of prevention (smoking, diet, carcinogens), it will likewise be necessary to strengthen the "prevention" sector.
- In 1987, 12 posts will be made available by the Commission for the implementation of this programme by internal reassignment.
- In 1988 a total of 14 posts will be required, of which 6 will be special posts for the preparation and implementation of the "European Information on Cancer Year".