U.S.News & World Report

The United States News (R)

Distributed During Week of April 12

U.S. PEACE PLAN FOR ASIA-Will It Work?

APRIL 19, 1965

RISING HOPE IN WAR ON CANCER

World Report ®

On Newsstands Until Cover Date

35 CENTS

THE WORLD'S NEWEST FRONTIER

Where Big Opportunities Are Developing

RISING HOPE IN WAR ON CANCER

Cautious optimism now marks the fight against cancer. New successes with surgery, radiation and drugs seem to signal a turning point. The big breakthrough cancer prevention—is still to come. But experts are reporting progress.

A growing hope of success now can be reported in the war on cancer. This war is far from won, but the tide appears to be turning.

Among sources of the new hope:

Scientists believe that they soon can unlock some of the mysteries of cancer. There have been major advances in surgery. Methods of utilizing radiation treatment are greatly improved. Some types of the disease are being treated successfully with new drugs. Immunization against some forms of cancer is foreseen as a good possibility.

Says Dr. Murray M. Copeland, president of the American Cancer Society: "More has been learned about cancer in the past 15 years than had been learned in all previous history."

The greatest recent gains have come in the fields of surgery and radiology, according to Dr. Kenneth M. Endicott, director of the National Cancer Institute. Reports show that these gains have helped raise the survival rate in cancer cases some 33 per cent.

As a result of increases in basic knowledge of body chemistry, forms of surgery are possible today that would not have been attempted 10 years ago.

Methods have been found for maintaining vital balances within the body while whole organs are isolated for the surgeon to work on.

Surgery for cancer of the lung has been developed as a life saver over the last decade. Cancers of the cervix, the neck and the head, considered inoperable 10 years ago, now are being accepted for surgery almost routinely, Dr. Endicott points out.

Some developments in surgery involve use of extreme cold or heat.

For example, Dr. Irving S. Cooper, a New York neurosurgeon, reported recently that he had frozen tumors deep inside the brain by using a hollow probe to inject liquid nitrogen. Once



tumors were frozen, they were removed surgically. Freezing eliminated the need for surgical clamps, which may cause damage to delicate blood vessels.

The freezing technique, known as cryosurgery, has been used successfully on cancers in other parts of the body, American Cancer Society authorities report. They suggest that cryosurgery may be helpful in removing malignant tumors from soft tissues which are inaccessible to other forms of surgery.

Intense heat, directly applied to a tumor, is another development. Specialists at the National Cancer Institute say they have used lasers to destroy cancer cells without damaging surrounding healthy cells. Lasers are intensely focused beams of light, of short duration, which can melt steel in a second.

Where radiation is used. Next to improved surgical techniques, the biggest advances have come in radiation treatment, Dr. Endicott says.

Radiation from X-ray machines, cobalt "bombs" and isotopes now can be used to destroy many cancers that are beyond the reach of surgery.

Further, radiologists say, better understanding of radiation dosages and better equipment enable delivery of the exact amount of radiation, right on target, that will kill cancer cells without harm to surrounding healthy tissues.

Ten years ago, standard anticancer radiation dosages were in the range of 250,000 to 500,000 volts. At that level, radiologists found that there could be dangerous burning around the area where the rays entered the body. Now, newly built machines, delivering radiation in the 2-million-volt range, can hit and kill cancers a surgeon could not reach—and can accomplish this without affecting surrounding areas.

Radiation is now the treatment most frequently used against Hodgkin's disease-cancer of the lymph glands-in its early stages. Studies at the National Cancer Institute have shown that 20 to 30 per cent of sufferers from Hodgkin's disease who received radiation treatment have survived 15 years or more. Twenty years ago, the disease was regarded as incurable and, usually, swiftly fatal.

Newly developed pumps may lead to greater success in treating some forms of leukemia—a cancer of the blood-forming cells. These pumps make it possible to bombard cancer cells in body fluids with radiation that can kill them without hurting healthy cells. Blood can be pumped from the body, passed under radiation, put back in circulation after cancer cells have been destroyed.

Surgeons in Seattle have discovered that radiation treatment of a number of types of cancer is more effective when patients are given pure oxygen at high pressure to breathe. This treatment, the surgeons reported in "The Journal of the American Medical Association," has "even a greater potential for cure of cancer than the availability of supervoltage radiation therapy."

Experts agree that, in many cases, radiation and surgery can be combined to eradicate cancer more effectively than either method used alone.

Use of X rays after surgery to kill random cells that "spill out" of a tumor that is cut away is now a matter of routine, particularly for patients who have undergone an operation on the cervix or

(continued on next page)

U.S. News & World Report

RISING HOPE IN WAR ON CANCER

[continued from preceding page]

breast. Survival rates, particularly for cervical cancer, have risen markedly since 1945, the American Cancer Society's statistics show.

Scientists at the University of Maryland school of medicine report that they have determined that radiation is also very helpful when administered before an operation. Radiation, the Maryland specialists suggest, apparently inactivates the cancer so that it will not "spill out" cells which might start cancers in other parts of the body.

Along with progress in treatment, surgical and chemical "nerve blocks" have been perfected which give the victim of an inoperable cancer the promise of life in which pain is eased with minimum use of narcotics.

Chemistry: "most hopeful." Looking to the future, most cancer specialists agree with Dr. Endicott, who says that "the most hopeful field for conquest of cancer in the years ahead lies in the realm of chemistry and biochemistry."

Already, some chemicals have been discovered which can destroy some forms of cancer without harm to surrounding tissues. Others have proved helpful in slowing the progress of such killers as leukemia.

Dr. Endicott reports that newly discovered drugs in combination, carefully administered, produced five-year remissions in 100 cases of acute leukemia.

Another drug perfected in the last 10 years—Methotrexate—has proved to be a cure for one kind of cancer which attacks women, choriocarcinoma. This previously was fatal to all who had it.

Last year, Congress appropriated 10 million dollars to help the National Cancer Institute search for cancer-curing chemicals. The intensive search has been going on since 1956. It has cost more than 200 million dollars so far.

Nearly 200,000 different chemical compounds have been investigated. Of these, more than 20 appear to halt, or reduce, cancer growth without causing dangerous side effects.

Researchers have lately discovered, for example, that chemicals from the periwinkle plant are helpful in treating cancers of the blood, the lymph, and even some solid tumors. Also, secretions of the common clam have shown tumorshrinking properties in some tests.

While some scientists seek chemicals that will cure cancer, others work toward a vaccine to prevent it.

Laboratory tests show that viruses apparently can cause some kinds of cancer-particularly of the blood, as in leukemia, and of the lymph system, as in Hodgkin's disease. Scientists at Roswell Park Memorial Institute, in Buffalo, N.Y:, reported just recently that they had isolated and grown leukemia viruses.

The big hope now is that cancercausing viruses soon will be identified with certainty, isolated, and examined. When that is done, anticancer vaccines can be prepared.

These vaccines might take two forms: They might stimulate the production in the body of antibodies which would kill the cancer-producing virus directly; or they might prevent the cancer virus from causing malignant growth even after the virus had invaded a cell.

Outlook for the 1970s. President Johnson reflected the opinion of some top medical scientists when he said early this month that a breakthrough against cancer might come "sometime during the 1970s."

Virologists point out that it took 17 years to produce effective antipolio vaccines after identification and culture of the polio virus had been achieved.

Even if some cancers prove to be preventable, others are likely to remain to menace human beings, most scientists agree. Specialists estimate that there are perhaps hundreds of kinds of cancer.

Most of these, statistics indicate, attack people over 45. All over the world, people are living longer—so more and more people are in the age bracket most vulnerable to the disease.

Even so, progress in surgery, in radiation treatment, and in development of drugs has lessened cancer's menace to a considerable extent. Diagnosis is easier and more accurate than ever before.

The feeling is widespread among specialists that the years just ahead may bring dramatic successes not only in the cure but in the prevention of many kinds of cancer.



In all, more than \$2 billion has been spent on cancer research, and the pace is quickening. The Federal Government's National Cancer Institute has spent about \$1.1 billion since the end of World War II. The Veterans Administration and the Atomic Energy Commission have big programs. Private groups, such as the American Cancer Society, Sloan - Kettering Institute, Damon Runyon Fund and others have spent an estimated \$1 billion on cancer research.

CANCER RESEARCH-WHY A TOP AUTHORITY IS OPTIMISTIC

Interview With Dr. Frank L. Horsfall, Jr., President and Director, Sloan-Kettering Institute for Cancer Research

Is science's final victory over cancer coming into sight? What barriers still must be overcome?

To get the latest authoritative answers, members of the staff of "U.S. News & World Report" interviewed one of the world's outstanding experts in the field of cancer research. His answers are an impressive progress report on the battle against the nation's No. 2 killer.



Dr. Horsfall

Q Dr. Horsfall, is there growing hope for people who develop cancer?

A I think that there has been increasing evidence during the last 10 or 15 years that supports a very hopeful attitude.

Q What are the chances of a cure now for a person who has cancer?

A Taking all patients with cancer into account, the likelihood of a five-year cure, as it's called, is probably one in three. In some of the very best institutions, the likelihood may be even higher.

Whether it yet approaches one in two is hard to say. But at any rate, it has improved greatly. Around the time of World War I it is doubtful whether the likelihood of a fiveyear cure was any better than one in 10.

Q What accounts for the increased hope?

A First, improvements in diagnosis-much earlier diagnosis. Secondly, improvements in treatment. It would be hard to say which of these factors has contributed most. But early recognition of cancer has made it possible to treat it far more effectively than was true in the past, when cancer was often widely extended-virtually inoperable-by the time it was diagnosed.

Q President Johnson said recently that he believes the problem of cancer will be licked in the 1970s-

A I certainly hope he's right.

Q Do you think he's right?

A That is what we are shooting for. But I've always felt that for those of us in science to make predictions—with a definite time limit—is very hazardous and, to some extent, irresponsible.

Q Do you foresee any sudden breakthrough in the next few years in the treatment of cancer?

A I don't think I'll attempt a prophecy on that one, either.

Certainly, I'd be the last to bar the possibility that there might be sudden big jumps in cancer therapy. All of the three major fields of cancer treatment have been progressing at a fairly steady-though admittedly slow-rate. But if one is thinking of discontinuous advancement-a sudden big jump or "breakthrough," as you put it-this has not occurred in any of the three major fields of treatment during recent years.

Q How about the diagnosis of cancer? Is there likely to be a sudden breakthrough in that field?

A Advancement in diagnosis has also been a steadily improving affair. But I think that some recent findings might well provide more rapid and simpler procedures for the differentiation of cancer cells from normal cells.

There are, I think, good reasons to hope that here a discontinuous improvement-a big jump-might be made.

Q What would you say is the most hopeful new development in research? What appears to offer the best prospect of eventually licking this cancer problem?

A Quite understandably, most people feel that the major efforts should be toward the cure of this ghastly disease.

I don't for the moment decry the importance-indeed the necessity-for seeking the best possible treatment for cancer. But the likelihood of achieving ultimate control through treatment alone is not a realistic objective.

As an' example which may seem pretty wide of the mark: Our present ability to treat smallpox—after a person gets it —is no better than it was in Jenner's time. And if we didn't have his smallpox vaccine, we would be just as badly off in respect to smallpox as they were in the eighteenth century.

The same is true of polio. Treatment of paralytic polio is still little more than rehabilitation. And treatment would never, in my opinion, have progressed to the point of being an effective solution for the problem of polio. It was the development of a preventive vaccine that brought this disease under control.

I use these viral diseases as outstanding examples of the effectiveness of prevention.

In my opinion, the cancer problem, too, if it is ultimately solved, is not going to be solved solely by treatment, regardless of how effective such treatment becomes. When (continued on next news page)

U. S. NEWS & WORLD REPORT, April 19, 1965 Copyright © 1965, U. S. News & World Report, Inc.

••• Probable: "preventive measures for some cancers"

the cancer problem is solved, I expect it will be through prevention.

Q Do you think that some way of preventing cancer will eventually be found?

A By analogy from experimental work on animals, I would think that the likelihood is good that effective preventive measures can be developed for some kinds of cancer.

Q Do you mean an anticancer vaccine?

A This might be one way. But in order to develop a vaccine, one would need to find an infectious agent which could be shown to be one of the major primary incitants of cancer. This has been done with certain animal cancers in which the incitant is a virus.

But there are other ways to augment immune responses, and all of these are being explored simultaneously.

"NO SINGLE CAUSE"-

Q What causes cancer?

A Well, we are almost certain that there is not a single cause of cancer. We're quite confident that it can be induced, can be led to occur and develop, by a variety of different causes—or, I would prefer to say, a variety of "primary incitants."

Now, this isn't quite as complicated as many people would have one believe. At the present time, we are quite sure that all of the factors that have been definitely associated with the induction of cancer can be put in three major categories:

The first of these categories is ionizing radiation, of which X ray is an example.

The second category contains certain chemical compounds, rather complex ones—the so-called chemical cancerigens.

The third category-found in animals but not yet in men -contains viruses. Some 30 viruses are now known that will induce cancer in animals, but none has yet been shown to be associated with cancer in human beings.

Q Are these the only factors in causing cancer?

A These three categories, we believe, cover all of the known factors that can serve as primary incitants of cancer. I emphasize *primary* incitants because there are, in addition, some secondary factors that have to be taken into account. One of the most important of these secondary factors is genetic make-up.

Q Do you mean heredity?

A No, I do not mean genetic constitution in the sense of inherited constitution, but something quite different. It may perhaps surprise you when I state that sex is determined by the genes and that sex, in the case of cancer, is of enormous importance.

Q Do you mean that a person's sex can affect his chances of getting cancer?

A It is a factor. For example, lung cancer is far more common among men than among women, and we are confident this is associated with genetic difference. Hormonal factors also bear on the occurrence of the disease. Environmental factors, even a person's occupation, may also be secondary factors.

Q Do you mean that certain occupations are dangerous, in respect to cancer?

A-J'm thinking particularly of the more obvious occupational hazards—a farmer, for example, who works in the sun all day, with ultraviolet rays beating on his skin. This, plus the dirt that gets in the crevices of the skin, may lead to skin cancer. There are, too, a number of industrial chemicals that contain incitants—coal tars, certain petroleum products, and such things. These should not be emphasized, because the frequency with which they lead to cancer is very low indeed, and industry has been particularly effective in detecting and getting rid of them. Industrial hazards of this kind are of progressively smaller importance.

Q Are there many types of cancer?

A This is, I think, an important question.

There are many different types of cancer, probably several hundred. But it is important to emphasize that the types are identified in descriptive or site terms—cancer of the breast, cancer of the lung, cancer of the skin, etc. The pathologist, the surgeon and the radiologist must recognize these different types because they react in different ways and the outlook is different, too, in many instances.

However, many are coming to recognize that all the different types are attributable to the kind of cell or tissue that is affected, and not to some fundamental difference between this type of cancer and that type.

Let me try to be more specific: I think that all of the evidence indicates that cancer is a cell phenomenon—at least the cancerous alteration is a cell phenomenon. Each tissue in our bodies is composed of different kinds of cells, even though they all have the same kinds of genes. So the cancerous alteration expresses itself in a different way in the lung or in the skin because of the different nature of the cells that are affected.

The basic change, the cancerous alteration—in my opinion and that of others—is the same, regardless of the type and regardless of the cells that are affected.

"PERMANENT" CELL CHANGE---

Q Are you saying, in effect, that all cancer is a cell disease—a case of cells gone wild?

A It is indeed. And I'll go further. I think one can make this as an axiomatic statement: If there were no cancer cells, there would be no cancers.

Q Does a normal cell change into a cancer cell? Or what does happen?

A We're quite sure that the normal cell may become cancerous and is subject to cancerous alteration. This can be demonstrated in the laboratory. It can be accomplished with special chemicals. It can be accomplished with ionizing radiation. And, most readily of all, it can be accomplished with certain viruses.

The important thing is this: Once this change has occurred, the genetic composition of the cell is permanently altered.'The altered cell will produce "daughter" cells that have the same alteration.

Just as with mutations of any kind in bacteria or other single-cell organisms, once the mutation has occurred, the cancer cell breeds true and continues to produce that kind of cell indefinitely. We have cultivated human cancer cells outside the body, in test tubes, for more than a decade, and they are still cancer cells.

Q What is different about cancer cells? Do they grow faster than normal cells?

A In the body, cancer cells appear to grow more rapidly than surrounding tissues—else how could one develop a cancerous tumor? But the feature that is important is not the rate of growth.

What is important is the remarkable capacity of normal cells to recognize other normal cells when they bump against each other. At the point of contact, for reasons that we don't

.. "The normal body can destroy" cancer cells

yet fully understand, the normal cell stops dividing. But cancer cells do not. They fail to recognize themselves, and they fail to recognize normal cells. Instead they keep on dividing-are aggressive and invasive.

Q We hear a lot more about cancer now than in the past. Is cancer actually becoming more prevalent, or does it just seem that way?

A We do not know the incidence of cancer as a disease leading to illness and disability. All that we know precisely are the cancer mortality statistics.

Now, there are several ways in which to assess mortality data, and the figures-unhappily, the only figures that were available, say, 40 years ago-are what are called "gross mortality" data. Gross mortality indicates the number of persons per year per 100,000 of population who die of a particular disease.

Q Do these statistics show cancer increasing?

A Forty years ago, cancer ranked only fourth among



-Sloan-Kettering Institute Photo

RADIATION THERAPY. Dr. Horsfall believes that the cancer problem will not be solved by treatment alone, "regardless of how effective such treatment becomes." He says: "When the problem is solved, I expect it will be through prevention."

leading causes of death. Now it is the second-ranking cause of death.

Forty years ago, the gross mortality rate for cancer was about 80 per 100,000 of population. Presently this rate is about 150 per 100,000.

From these figures, one might conclude that cancer is increasing in frequency. But it is not.

The figures to look at are the "age-specific" mortality rates. These are rates that have been adjusted to take into account the age at which cancer deaths occur. With agespecific mortality rates, it turns out that the death rate for cancer has not increased at all. It has remained at about 125 per 100,000 of population, and may have declined slightly in the last 10 years.

Q Does this mean, in plain language, that a person is no more likely to have cancer at the age of, say, 40 at the present time than he was a number of years ago?

A Yes, that's exactly what it means.

In fact, he may now have slightly less likelihood of getting cancer at the age of 40.

Q Does the danger of getting cancer increase with age? A The answer is unequivocally "Yes." The rate at which cancer develops shows almost a straight-line increase, going up with age. The older a person is, the more likely he is to develop cancer. Q Why?

A Let us go back now to the emphasis I placed on cells and the cancerous change in cells. The cancerous change may be thought of as comparable to a spontaneous mutation -meaning a change in the genetic machinery of the cell. Spontaneous mutations of many different kinds occur in all living species, but only rarely. In consequence-leaving aside the primary incitants-one would predict that the longer one lives, as a population of cells, the more he accumulates cell mutations of one kind or another. And this appears to be what happens.

Q Does this mean that everyone, if he lives long enough, is bound to get cancer?

A No. The fact is that most persons don't.

Q Why?

A This raises what I think is one of the most important of recent developments. It has been assumed for a long time that cancer cells, although possessing the peculiar characteristic of continuing to grow and divide when they come into contact with other cells, were identical with normal cells in most other ways-that there was no difference in their composition in the sense of their protein components or surface antigens. I mean by antigens those substances that lead to immune reactions.

We are quite sure now that this is not so. Cancer cells are in fact demonstrably different from normal cells: The normal body can recognize them, can produce immune responses that can destroy them, and patients with advanced cancer may have defective immune responses.

One of our major objectives is this: Can we develop procedures to bring up to normal-or preferably above normalthe inadequate immune responses of patients with advanced cancer?

We come now to the question of why everybody doesn't eventually develop cancer. Why is it that only about one person in six ever gets cancer? Why is it that 85 per cent or more of us are not going to get cancer?

Q What is the answer?

A We don't know the answer. I wish we did. But I am inclined to think that when the answers are known, the subject that we've just been talking about-immune reactions and responses-will be found to play a part.

WHERE CURE RATE IS BEST-

Q Aren't there already some kinds of cancer that can be dealt with effectively?

A Oh, there are a considerable number that are being dealt with effectively. Fortunately, some of the most common cancers are those that can be most effectively managed.

Q What are they?

A As it happens, they are primarily those of females. Cancer of the breast and cancer of the cervix are the two outstanding examples in which, if early diagnosis is madebefore extension and metastases have occurred-the five-year-

... "The present problem is trained manpower," not funds

cure rate is very high indeed. And by very high I mean 80 per cent or better.

Q What, exactly, do you mean by a "five-year cure"?

A A five-year cure means that, five years after treatment, the patient is well, leads a normal life, and has no detectable cancer.

Q Does this mean that the patient is then as safe as anybody else from cancer?

A Almost. The likelihood of cancer returning after this time is certainly very rare.

Q What about curing cancers most common in men?

A Here, unhappily, the situation is different. Two of the most common cancers in males are those of the lung and gastro-intestinal tract, and the effectiveness of the treatment for these is not good.

Q What are the methods of treating cancer?

A There are three major kinds of treatment: surgery, radiation, and chemotherapy.

Q Where are the big gains in treatment being made-in which of these treatments?

A All of them have been progressing at a fairly steady rate. Q What treatment is used to produce the high rate of cures in the cancers most common in females?

A The treatment of breast cancer is surgery.

The treatment of cervical cancer—if it is discovered early —is frequently radiation, sometimes combined with relatively minor surgery.

Q How about skin cancers?

A Skin cancers—the commonest form—are among the least serious cancers we know of.

EMPHASIS ON LEUKEMIA-

Q One scientist has been quoted as predicting that a vaccine against leukemia will be developed before a man lands on the moon. What about that prediction?

A First, I don't know when a man is going to land on the moon. And, secondly, I doubt that it's wise to relate these two things.

Now, when the primary incitants that lead to leukemia are decisively determined, and if it should turn out that leukemia in man is attributable to viruses as it has been shown to be in animals, then I would think that the possibility of developing effective vaccines would certainly be considerably improved. However, we do not yet have a completely effective vaccine against leukemia in animals.

Q Does leukemia appear to be one of the forms of cancer most likely to be solved soon?

A Leukemia is one of the kinds of cancer on which much emphasis is being placed at the present time—and I think the answer may be "Yes" for the following reasons:

First of all, acute leukemia in children has many of the aspects of a disseminated process that could be mimicked by infectious diseases.

In addition, the very considerable evidence regarding the relation between viruses and leukemia in animals is itself highly encouraging and stimulating, and vigorous efforts have been made to find viruses in human leukemia. There has been a series of reports within the last two or three years on the finding of viruslike particles in the blood of patients with leukemia.

But I think it is important to emphasize that a virus, in the end, must satisfy the only criterion that is acceptable and this is that it has biological activity. In the case of these viruslike particles in leukemia patients, biological activity has not yet been demonstrated. Q You say that viruses have been demonstrated as a cause of cancer in animals, but not yet in humans. Can you explain why?

A There are several possible explanations:

In order to demonstrate viruses in animal cancers, it has been necessary, in the main, to work from the species that has the tumor to the same species. Clearly this is not possible with human beings.

Next, it has been far more successful to work with newborn animals. Clearly this is equally impossible with human beings. You can work much more freely and rapidly with animals than with man.

Another major difficulty is this: There is no problem about finding viruses in human cancers. The difficulty is to determine whether those viruses are causally related to the disease or are simply passengers.

Q Has there been much advancement in the treatment of Hodgkin's disease in recent years?

A Yes, a good deal, in terms of radiation and chemotherapy. Hodgkin's disease tends to have a long survival time, and this has been considerably extended in the last 15 or 20 years.

PROGRESS IN DIAGNOSIS-

Q What accounts for the recent improvements in early diagnosis of cancer?

A There are many new or improved diagnostic tools or methods. The methods most suitable in a particular case depend on the site of the cancer. A well-known method is the so-called Papanicolaou test. This is useful particularly in cancer of the female genital tract, but of considerably less usefulness in many of the solid tumors, such as those of the breast, stomach, lungs and so on.

An important factor in today's earlier diagnosis is that there are more careful and more comprehensive examinations on the part of most physicians. Things are looked for now that perhaps were not looked for with as much skill or as much care in the past.

Q Have changes in the attitudes of people toward cancer helped in its earlier diagnosis?

A Such things have contributed a great deal. The Memorial Hospital [the patient-care affiliate of the Sloan-Kettering Institute], for example, was formed some 75 or 80 years ago because it was not feasible then to treat patients with cancer in general hospitals. They were not accepted.

Q Cancer was then regarded as a loathsome disease-

A It was more than that. It had a status that was even lower than venereal diseases at that time.

In the first place, the so-called causes of cancer were entirely unknown. There was considerable credence given to the idea that it might be infectious or inherited. Today people face cancer much more realistically.

Q Are we spending enough money now on cancer research?

A I don't think money is now the major factor. There is a limiting factor of a different kind. There's no use pouring money into a problem unless one has a sufficient number of highly trained and skilled persons to use the money effectively.

In short, the present problem is trained manpower. Whether or not more persons should and could be trained in this field, I think, is a far more important question than the amount of funds that are being made available for research.

I would even go further: To double spending on cancer research at the present time would have but little effect on the rate at which knowledge about cancer is advancing. [END]

Try something different for a change...

Turn to Salem for a taste that's <u>Springtime fresh</u>



FILTER CIGARETTES

salem

Menthol Havor

Rich tobacco taste • Menthol soft flavor Try Salem filter cigarettes

© 1965 R. J. Reynolds Tobacco Company, Winstan-Salem, N. C