The Council met on March 27, at the Royal York Hotel.
Present: Drs. Bell, Little, MacNeal, Simpson, and Mr. Marsh. Absent: Drs. Clowes, Ewing, McFarland, Woglom, and Wood. The president, Dr. MacNeal, brought the proxies of Dr. McFarland and Dr. Woglom, making a quorum. In the absence of Dr. Woglom, Mr. Marsh acted as secretary pro tempore.

The minutes of the preceding meeting were read and approved.
The report of the Treasurer was read and accepted.
The Council learned with regret of the deaths of the following members: Dr. William Ophius, Dr. Burton J. Lee, Dr. William P. Graves.

The following resignations were accepted: Dr. Herbert Fox, Dr. Lewis G. Cole, Dr. Henry Michelson.
The following applicants were admitted to membership:

Sir Frederick G. Banting
Dr. R. J. Behan
Dr. Charles F. Branch
Dr. Albert Claude
Dr. Max Cutler

Dr. Francisco Duran-Reynals
Dr. Willard S. Hastings
Dr. Christian Alexander Hellwig
Dr. Douglas A. MacFadyen
Dr. Ashley Webster Oughterson

Dr. Arthur Purdy Stout

Dr. Ludwig Kast, Mr. Lucius N. Littauer, and Dr. Herbert U. Williams were elected honorary members.

Extended discussion occurred of a proposal to consider the enlargement of the Association, the formation of local branches, and any necessary amendment of the Constitution and By-laws. The Council voted the appointment of a committee to consider the matter, and the following were appointed by the Chair: Dr. Simpson, Chairman; Drs. Ewing, Murphy, Woglom, and Wood, members of the Committee.
The following officers were elected to serve for the ensuing year:

President, Mr. Millard C. Marsh.
Vice-President, Dr. E. T. Bell.
Secretary-Treasurer, Dr. William H. Woglom (re-elected).

Dr. James B. Murphy was elected to the Council to replace Dr. E. T. Bell, whose term of office expired.
The members of the Council and their years of retirement are therefore as follows:

Dr. Francis Carter Wood, 1935
Dr. James Ewing, 1936
Dr. G. H. A. Clowes, 1937

Dr. C. C. Little, 1938
Dr. Burton T. Simpson, 1939
Dr. Joseph McFarland, 1940

Dr. James B. Murphy, 1941

The Council endorsed the recommendations of the Chairman of the Medical Library Committee on the cost of German medical publications.
The meeting then adjourned.

Millard C. Marsh,
Secretary pro tem.
The General Meeting was called to order at 9 A.M. on March 28, 1934, in the Main Lecture Room, Banting Institute, University of Toronto, by the President, Dr. Ward J. MacNeal.

**THE BEARING OF GENETIC WORK WITH INOCULATED TUMORS ON THE GENETICS OF SPONTANEOUS TUMORS IN MICE**

*C. C. Little, Bar Harbor, Maine*

Appears on page 578 of this number of *The American Journal of Cancer.*

**Discussion**

*Dr. James Ewing* (New York): Whenever I listen to one of these disquisitions from the geneticists I realize very keenly how theoretical this subject still remains. The material gathered by the geneticists is growing rapidly, and is throwing a great deal of light on many theoretical questions. At the same time I feel a certain intellectual rebellion when these papers are presented because, so far as I can see, the geneticists are able to accomplish nothing in a practical way with their knowledge, and I do not think that they should be content to remain in that position. It is all very well to tell us about genes, and their composition, and the choosing of ancestors. I should like to know if, with all this knowledge, something cannot be done in a practical way. Can you change the composition of your tumor? Can you cause somatic changes in any way? Can you point out what the mechanism of the hereditary factors is? If an animal has a special susceptibility to mammary cancer, have the geneticists shown that in this strain the breasts are a little different than in other strains? Is there any practical contact between your world and ours?

*Dr. Albert E. Casey* (New York): In working with the Brown-Pearce rabbit tumor, we have had strains in which transplants fail to take, which are approximately 100 per cent resistant, and other strains which are approximately 100 per cent susceptible. In previous studies on the constitution of these animal strains, we found that the resistant strain had a constantly higher hemoglobin than did the susceptible strain. There were also variations between the strains in the lymphocytes, eosinophils, and red cells. Perhaps if we studied the blood chemistry and other factors we would find a great deal of difference between strains which are susceptible to transplanted tumors and those which are resistant.

*Dr. Little*: Dr. Ewing is quite right. We should move toward more practical results. If I had gone on further in my paper, I should have suggested that by covering the mammea on one side of a mouse and x-raying the other side, or by taking tissue of a spontaneous mouse tumor and subjecting it to certain agents which are supposed to cause somatic mutation, it should be possible in the next few years to gather data as to whether we can produce these mutatory changes in tumor material. We have, however, only just reached a point where the strains and the material are available. This work has moved slowly, and I think Dr. Ewing's attitude of impatience is entirely understandable. All of us who are in genetic work feel, too, that we want to get at the constructive side of the problem. It has, however, taken a long time to lay the foundation, to breed up strains of animals which are homogeneous, even in as rapidly breeding animals as mice. We have recently reached a point where I hope some of the questions which have been so pertinently brought forward can be answered in the future. We do not expect to set the world on fire; we have the example of other types of cancer research before us, showing years of work without startling results; but we do hope to move from juggling genes to doing something that will be worth while for humanity.
CHEMICAL CONSTITUTION OF CHICKEN TUMOR EXTRACTS

Albert Claude (by invitation), New York

Appears on page 586 of this number of The American Journal of Cancer.

THE DEVELOPMENT OF MULTIPLE TUMORS IN TARRED AND RADIATED MICE. PART II

M. C. Reinhard, A. A. Thibaudeau and (by invitation) C. F. Candee, Buffalo, New York

Appears on page 590 of this number of The American Journal of Cancer.

Discussion

Dr. E. T. Bell (Minneapolis): I would like to ask Dr. Reinhard if multiple tumors such as he describes develop in mice following tarring if there is not a high incidence of spontaneous cancer in the strain.

Dr. M. C. Reinhard: Unfortunately I cannot answer that question, since we have no mice of any other strain.

Dr. C. C. Little (Bar Harbor): Dr. Korteweg, of Amsterdam, has reported treating with tar a large number of animals of two strains we sent him four years earlier. In his experiments the low spontaneous cancer strain gave a higher percentage of tumors than the high spontaneous cancer strain.

Dr. Ward J. MacNeal (New York): How great was the difference?

Dr. Little: It was not a very large difference, but such difference as there was was in favor of the low spontaneous cancer strain.

Dr. Reinhard: I apparently misunderstood Dr. Bell. We did find differences in two different strains of animals painted with another sample of tar, but the difference was not so much in the percentage of malignancies produced as in the time it took for the tumors to appear.

HYPERSONSUSCEPTIBILITY TO MALIGNANT DISEASE INDUCED WITH HOMOLOGOUS TUMOR MATERIALS

Albert E. Casey, New York

ABSTRACT 1

By a slow anaerobic autolysis of tumor cells in the cold a filtrable material has been obtained from the Brown-Pearce rabbit tumor. A single injection of as little as 0.07 c.c. of this homologous material will render rabbits more susceptible to the Brown-Pearce tumor. The susceptibility is expressed in all phases of malignant disease studied: in larger and more frequent primary tumors, in a greater incidence, number, and volume of metastatic tumors, in a shorter longevity, and a greater mortality. This material does not render mice more susceptible to the mouse tumors studied thus far. Furthermore, each mouse tumor was found to yield an homologous material when prepared in a similar manner which would render mice more susceptible to the homologous tumor but to none other. The homologous mouse tumor materials did not render rabbits more susceptible to the Brown-Pearce rabbit tumor, neither did a filtrate or an emulsion of fresh rabbit tumor tissue, nor an emulsion of fresh or preserved normal rabbit testicle, render rabbits more susceptible to the rabbit tumor. The rabbit tumor material is, therefore, powerful and more or less specific in its action.

Discussion

Dr. C. C. Little (Bar Harbor): I would like to ask Dr. Casey whether he considered at all the use of embryonic rabbit material which has been kept in the icebox for an equal time with the tumor material.

Dr. Albert E. Casey: We have considered using embryonic material, irritants, and several other things of that sort, but we have not started yet.

Dr. N. C. Foot (New York): I should like to ask Dr. Casey about the histological type of rabbit tumor, and its usual primary spontaneous site.

1 To appear in full later.
Dr. Casey: The rabbit tumor was considered a malignant epithelioma. Drs. Brown and Pearce were not sure of the exact origin, but they believed it was a scrotal tumor. It is carried, of course, by transplantation. Ordinarily it is transplanted intratesticularly, but it can be carried intramuscularly or intracutaneously, though with the latter route it regresses spontaneously.

THE GRADING OF EPIDERMOID CARCINOMA

Olive Gates (by invitation) and Shields Warren, Boston

Abstract

Five thousand and fifty-two epidermoid carcinomas from various parts of the body were graded in three degrees of histologic malignancy. The cases were fairly evenly balanced between the sexes, 52 per cent male and 48 per cent female, but certain marked variations in distribution appeared in the two sexes. Thus, 97 per cent of the carcinomas of the lower lip and 88 per cent of the epidermoid carcinomas of the ear appeared in males, while only 3 per cent of the carcinomas of the genitalia occurred in males.

There was no increase in the grade of histologic malignancy in the cancers occurring in the younger age group, in spite of their increased malignancy from the clinical standpoint. Thus, some other factor than histologic variation is required to explain the greater malignancy of epidermoid carcinoma in the young.

Histologic grading should not be used as a guide in individual prognosis, but is of service in determining group prognosis and of much help in estimating the probable radiosensitivity of a given cancer.

Discussion

Dr. William Carpenter MacCarty (Rochester, Minn.): I would like to ask Dr. Warren what criteria he used, as I think there is some difference of opinion as to Broders' criteria.

Dr. Warren: The chief criterion used was the degree of differentiation of the cell, and in this case I have taken the extent of keratinization of the cell. I know there is some discussion as to whether one can distinguish between so-called true keratinization and the formation of para-keratin, and so on, but for practical purposes I have gone on the appearance of keratinization in general. I have also considered to some extent the degree of invasion of the underlying tissue; that is, a fairly compact, well walled-off growth I have regarded as of somewhat lower malignancy than a highly infiltrating growth. I have used this when in doubt of the degree of keratinization, to throw the grade to one side or the other. I have tried, as far as possible, to use the worst part of the tumor, taking between one-third to one-half of the growth, because I find in many of the epidermoid cancers marked variation between different portions. I think that one usually finds the less differentiated portions along the advancing edge. If we have a fairly large proportion of a tumor of a distinctly different type than the remainder, and if the least differentiated portion is sufficiently active to give metastases, we are warranted in giving the tumor a higher grade than we otherwise would.

COMEDO-ADENOMA OF THE BREAST, FORMERLY LOOKED UPON AS COMEDO ADENOCARCINOMA

Joseph Colt Bloodgood, Baltimore, Maryland


Discussion

Dr. William Carpenter MacCarty (Rochester, Minn.): We have tried for years in our records to distinguish between comedo cancers of the breast and comedo mastitis. I am sure Dr. Bloodgood does not mean there is no such thing as comedo cancer of the breast in his series. I happen to have, for example, a series of comedo cancers of the breast of which 39.13 per cent showed node involvement at the time of operation.

Dr. Bloodgood: All I know is that the pure comedo tumors in my series were all cured, and were without node involvement. Those that are mixed with cancer have the same prognosis as cancer. The presence of comedo in such cases has no relation to the survival rate. At the time of my report I had 21 pure comedo tumors and 28 mixed with cancer. The 21 patients with pure comedo tumors are living, except for one who died of cancer of the cervix. If one reviews the whole comedo group it will be found that those who are living are largely those who showed the picture of pure comedo. Every five years or so I go over my cases and try to put them into two groups. The patients with pure comedo, that can be diagnosed at the time of operation, remain alive; those with comedo associated with cancer show the usual percentage of deaths, so that I do recognize a cancer in which comedos are present. Whether comedos lead to cancer I do not know; evidence of chronic cystic mastitis is much more common in cancer than evidence of comedo. There is a type of comedo in which I think we are justified in removing the tumor alone.

Experimental Production of Teratoma in the Fowl

Halsey J. Bagg, New York, presented in his absence by James Ewing

The Effects of Aqueous Extracts of Chicken Tumor on Nucleic Acid

Douglas A. MacFadyen (by invitation), New York

Appears on page 597 of this number of The American Journal of Cancer.

Discussion

Dr. E. T. Bell (Minneapolis): I would like to ask if this work gives Dr. MacFadyen any hint as to what the tumor-inducing substance is in the Rous chicken sarcoma.

Dr. MacFadyen: No, it does not, because there is very little known of the chemical nature of these enzymes. They may help in the further purification of the tumor-inducing activity because, so far, the polynucleotidase activity parallels the behavior of the tumor agent and may be estimated apart from the chicken reaction.

Effect of Radiation, Lactate, and Iodoacetic Acid on Tumors

W. R. Franks, M. M. Shaw, and W. H. Dickson (by invitation), Toronto

Appears on page 601 of this number of The American Journal of Cancer.

Why Cancer Is Not Recognized Early

William Carpenter MacCarty, Rochester, Minn.


Discussion

Dr. Joseph Colt Bloodgood (Baltimore): This is one of the most important articles on cancer of the stomach I have heard for many years.

In 1915 I reviewed every stomach case of which we had a record in any hospital in Baltimore, and the first thing I found was that all the cancers of the stomach had been referred for surgical treatment. We had been practising surgery of the stomach for twenty years then; we have now been practising surgery of the stomach forty years, and in 1915 the mortality of surgery of the stomach by qualified surgeons on operable cases was very little more than the present rate. In the twenty-five years in which gastric surgery has been done at Johns Hopkins, we have records of 3 patients living more than five years following resection of the stomach, or 10 per cent of those in whom resection was done; 90 per cent were dead of cancer, although it was possible to resect the tumor; the total living with known cancer was 1.7 per cent. I recently stated that I thought the cures had increased from less than 2 to more than 5 per cent. Dr. Christian, of Harvard, in commenting on this statement, said they had been unable to increase their cures in Boston.
Perhaps Dr. MacCarty can help me in this controversy. I gather that his operability has increased considerably.

**Dr. MacCarty:** Yes, to 25 per cent.

**Dr. Bloodgood:** I do not believe there is any form of cancer in which the education of the public can do more than in cancer of the stomach. Cancer of the mouth, skin, and cervix, are now almost preventable diseases; if we make proper use of the press and the radio in the next few years, there should be few cases of cancer in these locations. The conditions in regard to cancer of the breast are also improving tremendously. Do you not agree with me that the danger arising from an operable cancer of the stomach is much less?

In my first case I made a diagnosis of appendicitis, although I was sure there was something in the pyloric end of the stomach, for I knew that if I mentioned “cancer” the patient would not let me operate. I did operate and that man is living now, twenty-five years later.

It seems to me there is no good reason why a research society should not take its part in educating the public, and seeing that such education is provided in the proper way.

**Dr. James Ewing:** I would not depreciate in any way the importance of the surgical field in illuminating this question of early cancer of the stomach, but at the same time I think it is just as well to recall that still earlier stages of cancer of the stomach have been described by pathologists. I refer to Versé’s article, from Marchand’s clinic, in which he reported twelve early, unrecognized cancers of the stomach, all small, not more than 1 cm. in diameter, some eroded, but not ulcerated, all infected, with a good many polymuclear cells, and in which the diagnosis depended not on the recognition of special cells, but on the identification of perfectly well developed, typical adenocarcinoma. Those are the earliest cases of cancer I know about. It has been my good fortune to see only three, and they are of the same general character that Versé described. I have mentioned this many times before, but I almost never see reference to it in print.

I would like to ask Dr. MacCarty if the cells he described to-day as typical of cancer are exactly the ones he described in some of his previous articles. I thought possibly there were some differences. Also I think he will probably admit that in different cancers of the stomach the cells vary a good deal, and that not all of them are signet-ring types.

Finally I think it would illuminate our knowledge of the subject and be helpful if Dr. MacCarty would point out what, in his experience, brought these people not to the surgeon, but to the roentgenologist.

**Dr. MacCarty:** None of these cases was diagnosed on cells alone, as stated in the paper. They were cases that anybody would diagnose as cancer. The cells are the same cells which I have described many times, and I did not show them merely to make the diagnosis. I presented them rather as examples of beautiful cancer cells. I would like to see anyone make such beautiful sections with paraffin.

As to what brought these people to our clinic: there are 102 cases on this list, and not one of these patients came for cancer. One, for example, had had for six months stomach trouble, nausea, belching and sour eructations. There are thousands of people with similar complaints. This does not mean that all have cancer, but it does mean that something ought to be done to see if the trouble is in the stomach or duodenum. The man I am trying to reach is the general practitioner, not the cancer specialist. The general practitioner is not making thorough examinations. Any man who treats dyspepsia without an x-ray examination is doing a dangerous thing. These patients won’t all have cancer, but you cannot treat them properly unless you distinguish the gastric from the duodenal lesions. You are representative cancer specialists, as I am myself, but we must not lose sight of this. The greatest tragedy in my life is the fact that I see these people after they are inoperable.
The Stimulating Action of 1-2-5-6 Dibenzoanthracene on Hydranth Development of Obelia Geniculata

Stanley P. Reimann and (by invitation) Frederick S. Hammett (Philadelphia, Pa.)

Abstract

Observations have been made on the development of Obelia hydrants in sea water cultures containing 1-2-5-6 dibenzanthracene to approximate saturation, and in control cultures consisting of plain sea water, and sea water plus equivalent amount of the ether used as solvent for the test compound. The results demonstrate beyond question that the substance enhances the proliferation phase of growth in this organism.

In the concentration used, no toxic effects were evident.

No influence could be seen on the metabolic processes of maintenance of the mature feeding organism. Nor was there any apparent effect on the catabolic processes which occur as the life of the hydranth as an individual reedes to give place to a new animal through recurrent growth.

No effect on the developmental processes of differentiation and organization was detected which could not be attributed to the underlying increase in proliferation.

These results indicate that proliferation is affected by 1-2-5-6 dibenzanthracene in quite the same manner in principle in primitive organisms as in the higher animal species. From this it is concluded that the carcinogenic activity in so far as the process of cell multiplication is concerned is not due to the evocation of any reaction specific to higher animals potentially capable of malignant growth, but is exerted through the fundamental biological chemical system concerned with cellular proliferation which is common to living things in general.

The Hypophysis in Human Cancer: A Summary of 80 Cases

George A. Wyeth, New York City

Appears in Endocrinology 18: 59, 1934.

Discussion

Dr. James Ewing: Will Dr. Wyeth tell us what type of cancer was associated with extreme degrees of eosinophilia?

Dr. Wyeth: I am sorry I am not prepared to answer that. We have taken different kinds of cancer from the records of the Virchow Krankenhaus, but I have not made any detailed study of just the kinds associated with increased eosinophiles.

The Morphology of Early Carcinomata of the Prostate

Robert A. Moore (by invitation), New York

To be published.

Discussion

Dr. Shields Warren (Boston): I should like to ask how many, if any, of these early cases showed evidence of metastases, and also if I am correct in the impression that only in the prostates showing evidence of senile atrophy has the carcinoma developed?

Dr. Samuel R. Haythorn (Pittsburgh): I would like to point out that the sites of many early carcinomas found by Dr. Moore are such as to be readily missed in the commonly used median bar operations on the prostate gland.

Dr. E. T. Bell (Minneapolis): The diagnosis of cancer of the prostate frequently gives a good deal of trouble. The first difficulty which most of us meet is missing the tumor which may be present. Even post mortem, where we have metastases, we may miss the primary growth in taking sections of the prostate. The only way to get around this difficulty is to take a large number of sections from different parts. I should like to ask Dr. Moore if he thinks that in examination of a microscopic section under low
magnification the departure from a lobular structure is of value in recognizing cancer. It seems to me that it is helpful. The point which Dr. Haythorn mentioned is becoming very important to us now. Frequently in these punch operations the surgeon misses the tumor. Will Dr. Moore explain a little more clearly the distinction between the middle and posterior lobes, and what he thinks would be reached by the punch?

**Dr. Robert A. Moore**: In only 4 of this series of 52 cases was there metastatic tumor in the seminal vesicles, in 3 instances by direct contiguity. Otherwise there were no metastases.

In regard to Dr. Warren's second question, senile atrophy is associated with cancer; usually both lesions were seen in the same low-power field.

We were able to make the diagnosis from the gross appearance in 10 of these 52 cases; there was an irregular, white, firm area located usually in the posterior lobe. I do believe that these multiple small acini are a departure from the type of epithelial reaction in hyperplasia and are of considerable diagnostic importance, and that they can be recognized under the low power, although the high power should be used for the study of the cell type and the basement membrane.

As to the middle lobe, I am rather in the dark myself as to just what this is. We have accepted it as that part of the prostate between the urethra and the deferential canal, cephalad to the colliculus seminalis. In these cases we have never observed a tumor in this region which did not involve some of the other lobes, so that the point of origin could not be demonstrated.

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**EXTRAMEDULLARY PLASMA-CELL TUMORS OF THE UPPER AIR PASSAGES, WITH REPORT OF A CASE**

*Walter L. Mattick and A. A. Thibaudeau (Buffalo)*

To appear in *The American Journal of Cancer.*

**Discussion**

**Dr. B. Earl Clarke** (Providence, R. I.): I would like to report briefly a somewhat similar case. Our patient, a man of eighty-two, first presented himself at the Tumor Clinic of Rhode Island Hospital because of a lesion of the skin on the right side of the nose, which extended over onto the cheek. On examination the right nasal passages were found to be entirely filled with tumor growth. The x-ray picture showed the right antrum to be filled with tumor, and there was destruction of the bony wall on the nasal side of the antrum. X-ray pictures of all other bones were negative. The Wassermann test was negative. The patient was operated upon, the antrum was cleaned out, the involved bone removed, and radium was inserted. The operation was done about five months ago. We saw the patient again about a week ago, and there was no evidence of recurrence. The histology was typically that of a plasmocytoma.

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**ELECTRICAL CURRENTS FROM DENTAL METALS AS AN ETIOLOGIC FACTOR IN ORAL CANCER**

*Melvin C. Reinhard and Harold A. Solomon, Buffalo, N. Y.*

Appears on page 606 of this number of *The American Journal of Cancer.*

**THERATOMA OF TESTIS**

*Charles C. Herger (by invitation) and A. A. Thibaudeau, Buffalo, N. Y.*

Appears on page 525 of this number of *The American Journal of Cancer.*

**A STUDY OF SERUM OF CHICKENS RESISTANT TO ROUS SARCOMA**

*F. G. Banting and S. Gairns (by invitation), Toronto*

Appears on page 611 of this number of *The American Journal of Cancer.*
Discussion

Dr. Albert Claude (New York): Does Dr. Banting consider incubation of the mixture immune serum and tumor extract as favorable for neutralization? We know that chicken tumor extracts become inactivated spontaneously at room temperature and much more rapidly in the incubator. Results after incubation may appear to be better because in that case the neutralizing serum is acting on a partially inactivated tumor extract.

Dr. Albert E. Casey: You are using sand filtrates. I would like to ask, also, if you are using cell suspensions, for it has been shown that the virus of Rous sarcoma will remain in the cell, and is there protected from the immune serum.

Dr. Banting: In regard to the question about incubation, if tumor extract and serum were mixed and given without incubation, one or two of the three test birds usually developed a tumor.

As to the control, the normal serum-sand filtrate mixture was always the control on the activity of the extract. We did a very large number of experiments using normal serum as a control, on resistant serum tests.

In regard to the effect of resistant serum on cells, that is difficult to answer. I think possibly the next paper will contribute something in answer to that question. When tumor cells were ground into a very fine pulp and incubated with a large amount of serum for three to four hours before injection, slow-growing tumors usually resulted.

A Study of Rous Sarcoma Tissue Grafts in Susceptible and Resistant Chickens

D. Irwin, S. Gairns, and F. G. Banting (by invitation)

Appears on page 615 of this number of The American Journal of Cancer.

Discussion

Dr. Albert E. Casey: Do you feel that the immune serum, the neutralizing serum, will neutralize virus which may be inside the cell? I am still curious about this point. Several years ago Rous, Andrews, and Fischer all worked on this problem. Cells which contained virus were washed and the washings mixed with immune serum, and neutralization took place. Then washed cells, still living, were mixed with immune serum, and neutralization did not occur. In another experiment killed cells were mixed with immune serum, and were neutralized. If this is so, it would explain why an immune serum injected into an animal has no effect.

Dr. Banting: We have not come to final conclusions. We have experiments under way to endeavor to settle the effect of resistant serum on tumor cells. We know that, if we give three doses of immune serum at five-day intervals immediately before inoculation of tumor extract, the birds do not all develop tumor. In other words, we call them immune birds, but there seems to be a great difference between an immune bird and a resistant bird. We can combat the tumor-producing substance, the tumor extract, but we have not been able to destroy the tumor cells.

Dr. Casey: Then in your experiments both the serum and the cells must be taken into consideration as present and interacting.