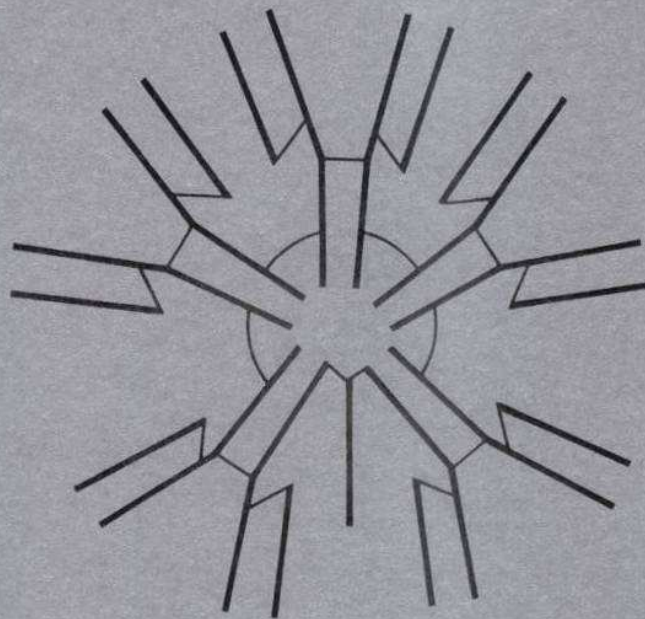


PROTOBIOS
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ENZIMAS VIVIENTES



F. CHACON MEJIAS

I. - CLASSIC VIRUS AND CANCER VIRUS I.....	3
II. - CLASSIC VIRUS AND CANCER VIRUS II.....	17
III. - PATHOGENY OF CANCER	32
IV. - ELEMENTAL LIFE OF THE GENES - VIRUS - GENES AND PHAGES.	47
V. - THE VIRAL STRUCTURES	56
VI. - IN THE FOUNTAINS OF LIFE	72
VII. - THE MECHANIC OF CANCERIZATION.	93
VIII. - NEW ORIENTATIONS IN CANCEROLOGY.....	106
IX. - AUTHOSYNTESIS OF THE VITAL UNITS.....	132

FOREWORD

Dr. Chacón's research, published at the time, shows an evolution which arrives to a final conclusion. BIO-BAC is not fruit of one day. It is the result of 50 years of work, since when Dr. Chacón started to publish he had already been researching for years. By reading the book, you will be able to observe the development of the work of a pure scientist who sacrificed his life for mankind.

I. - CLASSIC VIRUS AND CANCER VIRUS I

January 20th 1959 - by Fernando Chacón Mejías

FORMATION AND NATURE OF THE VIRUS

The fact of having achieved to conclusions that I judge to be interesting in this field of science and our belief that, at obtaining them, we have acquired an ethical obligation with our equals, moves us to give account of the concepts reached along eighteen years of research on virus in this series of works.

We are only exposing fundamental ideas, perhaps rather schematically, but enough to be understood easily. As every experiment that embraces a wide field - impossible to explore by a single person with few media - maybe it has lack of details, but the matter of profoundness has been confirmed by a thorough and detailed observation through time in numerous cases of epi and enzooties.

In order to get a better efficiency, we united in only one person the microbiologist and the clinic and we moved the experimental laboratory to the country. The conclusions of the clinic passed through the sanction of the microbiologist and vice versa. We judge that the problems studied have become partially solved and some of them seem in a definitive and practical route of solution.

From the beginning, we considered it the problem as directly related to cancer. We have fought in this field without fainting year after year, encouraged by several members of the medical class who supplied us with extracted tumours of diverse characteristics. Without more introductions, I want you to enter with me in this marvellous world where life is born in its most elemental shape. Where the addition of inert molecules that are lacking of own life cause, by association, a molecular complex gifted with own life and susceptible of multiplying, although this multiplication is related to the presence of live cells. The concepts exposed here do not modify at all the current points of view, but they complete wide sectors that are completely unknown.

We have always considered, and so it is admitted, that a determined virus comes, from the point of view of ontogeny, from another that is equal, because it is a biologically defined specie and even included as such in the microbiologic systematic. We see the matter as a whole with a less simple point of view and partially wider also.

It is true that any virus comes by multiplication in live cells from another equal macromolecule, but we have arrived at the conclusion that, at their origin, viruses do not come from other that are equal, but are formed by enzymatic aggregations, that come from different bacteria, and, only when these aggregations have been quantitative and qualitative made, in a determined proportion, the virus appears as such, with its entourage of pathogenic effects and is studied by the virologist.

We are going to explain how viruses are formed and the mechanism that enzymes employ to become virus by association. Luis Pasteur believed that unfolding of sugars into alcohol and carbonic acid was due to the vital action of yeasts or "figured ferments," but in 1897, Buchner tore the yeast with sand in a mortar and, by filtration, he obtained a juice free of yeast. This filtrated had the capacity of fermenting glucose, demonstrating that the unfolding of sugars is done catalytically by a not living substratum. These substances were called "not figured ferments", and later, enzymes.

In yeast, as in all micro organisms, there are enzymes, made by them, which although being substances that are not live, perform a bio-chemical function, with absolute autonomy of the being that created them. The presence of the organism, creator of enzymes, is not necessary for them to act, having, besides, each enzyme a specific biochemical function. Fischer said that the enzyme is to the substratum on which it acts as the key to its lock.

Everybody knows that the complete enzyme or halo-ferment is formed by two fractions: one fraction is called apoferment, of protean nature and specific character, and another called co-ferment, of lipid nature, that gives the character of specificity to the enzyme.

From the experiences of Buchner it is concluded that, although, the enzymes are not live substances; they are created by live beings and act with independence from them.

Really, these autonomous functions of the enzymes cannot be considered as vital manifestations, because the enzymes do not multiply by themselves, but they have to be produced by more or less organized beings. However, these autonomous manifestations have an activity, that is, itself, the most elemental manifestation of vitality. From this stammering of vitality stems the series of phenomena that will cause the formation of phage first, and after, the formation of virus as a superior organization.

An isolated enzyme is only a link of a chain of enzymes elaborated by a determined living being, with the aim of transforming the feeding substratum and take care of its synthesis and energetic capture. But the isolated enzyme tries to get independence from the organism that created it, trying to form an enzymatic independent equipment that, completing a biochemical cycle outstandingly heterotroph, gives it the necessary resources - by the capture of vital cycles of the cell in which they live to its own synthesis.

The enzymes that have to meet in equipment have to compound a defined series and these different enzymes are not found together in only one bacteria or inferior micro-

organism. When an isolated enzyme meets one of its complement - not of the complements produced by determined bacteria, but of the ones that are going to form independent equipment from the bacteria to constitute the virus - joins it, forming a bi-enzymatic being.

This bi-enzymatic being can go on adding exo-enzymes coming from other bacteria, but if it is one enzyme that it needs to add, then it acts as phage and sets free the enzyme from the soma of the bacteria by lysis of it.

In this last case, the bi, tri, etc. enzyme multiplies actively around or inside the bacteria whose enzyme is trying to set free, and so, either by voluntary donation or by forced donation, the bacteria gives up the new enzyme, that begins to form part of the elemental team that attacked it.

We are so at the presence of the multiplication process of the most elemental being, the phage, produced by the aggregation of two or more enzymes without the capacity of isolated multiplication.

However, the phage is an enzymatic incomplete equipment that tries to complete itself, it is virus that is not yet bio-chemically gifted to set free energy of the vital cycles of the live cells.

Therefore, it stays in the most complete inactivity, capturing exo-enzymes, maybe using chemo tactile; but it multiplies again actively at the presence of a bacterium from which it has to liberate an endo-enzyme.

Well: when the enzymatic equipment completes itself by the capture of the enzyme that was missing, then it acquires a different type of autonomy. It can already multiply itself, using the vital cycles of the living cells. It is already a virus the way the virologist knows it.

Explaining this phenomenon simply, as it has been done, it would come up that all enzymes tend to form enzymatic equipment that are complete and independent, and, in consequence, the emergence of saprophyte or pathogenic virus would be of alarming frequency.

However, for starting the chain association an induction is needed. It is necessary that an activated and induced enzyme starts the associative tendency.

This induction or activation is provoked through different route. First, let us consider the immune induction. It is done as follows: a bacterium, generally pathogenic, of any nature determines a chronic or acute type infection in a superior being, who, because of the attack, saturates itself with defences against such bacteria, and so natural immunity is produced.

The virulent, ordinary bacteria are blocked by the organic defences that stop its normal development, being, at the end, thrown out, destroyed or inactivated. It is in this moment when certain enzymes of this bacteria are activated and induced to get independent, trying to create an enzymatic equipment through its union with other enzymes of different origin, determining first the formation of a phage element and, after, at completing, a virus.

This must occur in some endemic typhus because, first the phage appears in convalescents and after, in the cured patient, a viral encephalitis is produced which, often is mortal.

The encephalitic virus has not come from contagion, but has been created inside the ill person by the explained mechanism.

All virosis come up due to this mechanism. The initial virus is elaborated by this mechanism and, if it can be spread, the epidemic chain starts from the individual or individuals that first created it. Once the chain of transmission has started, the virus already works as a being gifted with life, and all the viruses that come after have their origin from the ones initially created. We no longer can prejudge their formation.

From this reasoning, a logical consequence comes up and this is that if in a determined country there are not all the bacteria that quantitative and qualitative have to give the different enzymes to form a virus, this stays incomplete and such virus is never formed. The most that can happen is that a more or less complicated provirus or phage will be formed, that does not multiply in the presence of live cells of superior animals. This way this virus cannot be constituted endemically or through enzootic route in the country.

When in this country all the bacteria able to complete the enzymatic equipment of a determined virus are found, and then the virosis will be endemic in the country. If not, it has to come by epidemic via.

When a bacterium that is donator of enzymes is habitual guest of insects, the phage provirus, formed in man or animal, has to pass through vector insects in order that the provirus, at completing the equipment in the insect, becomes a virus.

In addition, through this mechanism, a series of facts can occur that produce the different antigenic variants of a determined virus. Let us suppose a virus with antigenic variants, as for example the glossopedic virus. Let us calculate for it, as a minimum quantity of enzymes that can form it, seven. This virus is of a determined antigenic quality; but that virus that multiplies in front of the live cell as a perfect virus, can meet, at a determined moment and in other region of the country from where the

epizooty started, a determined bacteria that can give it another exo or endo-enzyme and then, though it is already a perfect virus, it acts on the bacteria or in its exo-enzyme as a phage, adding itself to the new enzyme. This brings as a consequence that the final product of its metabolism, because of having widened the range of action of the biochemical equipment, is different, with which it has changed from an anti-gene point of view, emerging, through an apparent mutation a new antigenic variant.

However, there are other procedures of activation or enzymatic induction, and another of them is the telluric or radioactive activation. Let us put an example that will explain us the mechanism of such activation.

There are bacteria, like the bacillus of the red evil of pig, that do not act in summer, at least in this zone- and that however provoke real massive invasions in stormy and cold autumn weather. It is a matter of telluric factors that we are far from knowing, but that observation and practice give us the evidence doubtlessly.

It is also possible to prove that cyclically, each twelve or thirteen years approximately - maybe coinciding with periods of maximum solar radioactive activity- devastating red evil epizooties appear. In almost all the springs of red evil, an enormous quantity of bacillus do not act as visible bacillary forms, but in an invisible corpuscular form. That this is like that is demonstrated by the following observation.

If we take with the handle of sowing, from the viscosities of the dead pig, two equal quantities, and we extend one of them in frolements to observe, after colouring, at microscope, and we extend the other on the surface of agar, we will observe that, while, at the frolement, after being passed through all its extension, only a quantity of bacilli that is not more than ten is observed, but on the surface of the agar, after incubation, more than 300 colonies appear.

As each colony has emerged of a vital unity, it comes that at the frolement, these same vital unities existed, but they were invisible. We see how the environmental factors decide on the pathogenicity of a determined bacterium. The same way these factors can induce, activate or excite the enzymatic aggregations, and virus like grip or cold appear.

Another type of induction could be determined by attack of bacteria through antibiotic action. Once examined the inductor causes, let us check other as interesting aspects. Virus, in their pathogenic action, keeps the bacteria that donated their enzymes. If they are gifted with a determined tropism, the virus will have it increased, because it is a more heterotroph organization and, for this, more exalted in its actuation.

We have seen pest springs where the first pigs attacked, without any pest symptom yet, had the lungs completely invaded by Hemophilus suis and totally massive. In the pigs that are, coming up ill afterwards the Hemophilus of the lung has disappeared completely but the mass of the lung continues with an already clear picture of lung pest. The Hemophilus has been, in this case, the supplier of the last enzyme and the resultant virus continues with the same characteristic in its pathogenic actuation and with its same tropisms, being the pneumonia produced exclusively by the pest virus.

The dermic, nervous, intestinal and septicemic tropism of the virus of porcine pest at the different sprouts of the illness obey, as a cause, to the fact that the fundamental nucleus of the virus, or its enzyme of pathogenic actuation, is gifted by a bacteria of the same affinity.

We have been also able to prove that, although there is an unitary criterion upon the anti-genicity of the virus of porcine pest, it is not less true that it is constituted by a real antigenic mosaic, result of the different qualities of the aggregated enzymes and that, when it is used in a serum vaccination, a very heterogeneous serum respect the employed virus simultaneously, the serum neutralizes a series of common enzymes, but not others of the enzymatic mosaic of the virus, because its anti is not present in the serum. The macromolecules not totally neutralized are degraded to phage virus, with which they stay inactive; but if the not neutralized enzymes are many, this provirus can complete itself with other types of enzymes different from the ones neutralized by the serum and settle in other bacteria and, occurs, after, then, sooner or later, depending on the time, that the virus has taken in, completing again a pest explosion or a dropping of chronic ills. These are cases known by everybody and have their explanation in these facts. It concludes, in consequence, that pest virus has antigens or common enzymes neutralized by all the anti-serums, but that these common enzymes can be replaced if part of the rest of the antigenic mosaic is left without neutralizing.

From here the necessity of using homologous serums that totally destroy the enzymatic equipment of the virus that we have inoculated simultaneously, because the pest virus - because of the enormous quantity of bacteria that are in contact with the pig - is formed in fraction differently, depending on the quality of the enzymes supplied by different bacteria, although their common and fundamental structure is almost identical in all them.

We have another observation that supports the fact that the viruses are formed by enzymatic aggregations and it is the following: it is known by all veterinaries and dealers how dangerous it is to join in one group pigs of different origin, because pest explosions occur frequently.

The explanation is the following: each lot of pigs had remained healthy because they had not been in contact, at their origin place, with the complete group of bacteria suppliers of enzymes, carrying each lot, either a supplier bacteria or an inactive phage provirus. At common coexistence, they interchange the different pro-viruses and supplier bacteria, being very probable that the enzymatic equipment is completed and, as the enzymatic equipment is the virus, the pest explosion appears.

With these considerations, we finish the part dedicated to the study of formation of classic virus. Before finishing this first work, we will do also a study on the formation of virus of cancer. We have seen before how classic virus are formed by phagic aggregation of a series of enzymes coming from bacteria.

We have also seen how, in their pathogenic performance and tissue tropisms that they carry the impression of the supplier bacteria and, specifically of the pathogenic bacterium that supplied their enzymes. It is logic that, being the virus a more exalted pathogenic entity, because it is more heterotrophic than the pathogenic supplier bacteria, from part of their enzymes, is the virus transmissible in series if the supplier bacteria also are, although at a smaller scale.

With these considerations, it is easy to understand how cancer virus behaves and which is its nature when we do the remarks that follow.

Cancer viruses are not formed by aggregations of bacterial enzymes, but by aggregation of fungi enzymes and of a certain class of fungus and bacteria located biologically in the actinomycetal order; order that is a bridge link between the world of the bacteria and of the fungi.

Among the genders of this order, we find the tuberculosis bacillus, producer, already on its own, thousands of new formations.

The Actinomyces, producer of osseous tumours, the nocardias- producers in some places of the farcinosis of the ox - chronic illness that produces ganglionar tumours very similar in their evolution to the lymphogranuloma of Hodgkins and, at last, the streptomyces gender, producer of almost all the known antibiotics.

The fact that, precisely, a streptomyces has been isolated by us many times in cancerous blood and that this is a supplier of enzymes for the cancer virus, would be a cause that would explain the lack of efficacy of antibiotics in cancer.

The fact that the Hodgkins lymphogranuloma starts usually from tuberculosis lesions would demonstrate the fact that the tuberculosis bacillus can also be supplier of enzymes that contributes to the formation of the virus of lymphogranuloma. We would like to finish making the following remarks. The mycosis processes, and even the tuberculosis itself, are not transmissible in series by natural contagious, because for that it is necessary a certain individual susceptibility and, besides, in their pathogenic action they tend to locate and to be chronic.

We have said that the viruses carry in their pathogenic actuation the characteristics of the supplier agents of their enzymes and it results of easy understanding that the virus of cancer has the inclination to produce chronic processes, with tendency to location and without tendency to the transmission in series.

As to denounce the presence of a virus it is necessary that it is transmissible in series, causing in animals of experimentation visible pathologic effects, it results that the virus of cancer can not be put in evidence with the current technology, because they are not transmissible in series, and to get this series it would be necessary to discover the 3 or 4 per 1000 of the sensitive persons and establish it with them. However, as sensitivity is not demonstrable, we are at the impossibility of putting them in evidence.

It is very probable that like all the persons suffer an attack of the tuberculosis bacillus that produces a prime infection, calcificated in resistant individuals, we suffer a cancerous prime infection that produces, in not sensitive, a state of particular resistance.

March, 5th, 1959

We had thought to dedicate this second work to the study of metabolism of filterable virus, but I have considered that the concepts developed in the first work must be widened in order that the mechanism that is exposed becomes clear in all its extension. We leave, so, for the next work all the considerations that refer to metabolic biochemistry of the virus with other derived considerations.

At making a revision of what was exposed before, we are going to examine the problem of the formation of virus from the most elemental to the most complicated, according to the following scale: - Proenzyme. Enzyme. Phages or virus of bacteria. or provirus. Classic virus. Exit bacterial germs.

The proenzymes, or precursors of enzymes, are apoenzymes produced in a state of catalytic inactivity. The trypsinogen, by example, is produced by the pancreas in an inactive way, and it lacks of action on proteins; but when it arrives to intestine, it is activated by an enzyme type of substance called enteroquinase, present at intestinal secretions, whose precise nature is unknown, becoming an active protolytic enzyme: tripsine.

A kind of conjugation of a protein coming from pancreas or proenzyme or inactive apophorment with a factor of another nature, which acting as coenzyme, produces the halopherment tripsine.

We see, then, how to the formation of an enzyme it is necessary, as we said in the first work, a protein nucleus- apophorment - and a fraction of another nature - the coenzyme -, and we have seen how the protein nucleus can have an origin that is completely different from the prosthetic group or coenzyme. These protean nucleuses are real proenzymes, and can come from proteins of the most diverse and multiple origins. The enzymatic proteins are of relative high molecular weight, varying from 40.000, for peroxidase to 250.000, for catalase. They have in common with the rest of the proteins the characteristic of reacting with the action of heat.

Having into account that the viruses have a molecular weight between two and forty million- those of plants -, we will deduce that they are formed by associations of a great number of enzymes.

If we analyze the functions of enzymes in cells and their distribution, we find that almost all cellular enzymes are found in protoplasm. Some of them are soluble compounds of proto and cytoplasm and even it seems very probable that the protein matter of these is formed on the base of enzymatic proteins. There are other many that are firmly joint and form a part of the granular structure of the protoplasm.

In plants, real enzymatic equipments are found, associated to chloroplasts and, others, to mitochondria, as it happens with all the group of enzymes that have a performance in the respiratory oxidation of sugars.

On interpretation of the presence of such enzymatic equipment is that the close aggregation of several enzymes is essential so that the metabolic processes take place and whose reactions go one after the other in a continuous phase series. A consequence of one of these reactions is immediately the next substrate, it is easy to understand that the enzymes that act on them are associated in only one unity, well integrated and organized.

All complex chains of reactions, like breathing, photosynthesis, etc. have their respective enzymes joint among them, forming complex particles.

We see, in these cases, how activated enzymes can have a tendency to conjugate with independence of the bacterial cells that originated them to suffer a process of vitalization at transforming into Phages and viruses.

Some enzymes seem to be formed only by one protein, others, however, have two portions, as we have said repeatedly.

The creative part, or coenzyme, is of varied nature. In the tyrosinase it is constituted by a metallic atom of copper. In addition, zinc, manganese, magnesium and iron form the prosthetic group of many enzymes. In other cases, the prosthetic groups are formed by organic substances that are relatively complex, and, it is curious that substances, discovered first as vitamins, we know today that they work as part of the prosthetic group of enzymes.

The prosthetic group of the hydrogenases is the phosphopyridinic nucleotide and the one of the flavoprotein enzymes, the riboflavin.

With these considerations we can have an idea of the structure of the virus and the provirus, or Phages or virus of bacteria, because from the preceding ideas one deduces that they are formed by a mass of conjugated protein apoenzymes, covered by a mosaic of prosthetic groups in chain, forming an appendix or tail. Each prosthetic group owns in the metabolic cycle a function of link of the chain, at the end of which the energetic liberation is produced.

We must do now a reminding of the current ideas about Phages to deduce after the opportune consequences.

D'Herelle arrived to the conclusion that the bacteria-phage was an ultra-microbe that parasited bacteria, getting their destruction. He also concluded that the bacteriophage plays a great role in the infection and in the immunity, being the main defence against pathogen invader bacteria, concept, and this last one that was hardly discussed.

About its exact nature some researchers supported D'Herelle's opinion that it was a tiny microbe that lives on the bacteria, while others thought it should be considered an unanimated living substance, and others, as an enzyme. Apart from its exact nature, it is undutiful that Phages have a great facility for growing and multiplying, having been demonstrated one time after the other that they have no action on dead germs, and that it shows itself inactive in live organism.

The phage has many characteristics of filterable virus. If virus are of a special structure, the same happens with ph. Through the use of collodion membranes, very carefully graduated in their porosity, it has been demonstrated that there is an outstanding difference in the size of the particles of different pure strains of Phages. From these considerations the proviric nature of the phage comes up clear, because we will agree

in the fact that bacteria are live cells, and, however, virus do not multiply in them, whereas Phages act on live cells of superior animals.

Is it not clearly logical then that phages use the bacteria for, besides getting biochemical energy of the metabolic cycles of the bacteria, having it donate voluntary or violently enzymes that are necessary to complete its equipment? From the size of the Phages, does it not follow that this depends on the aggregated number of enzymes in its aspiration to major autonomy of biochemical actuation? In addition, why if the concept of D'Herelle is true, the ingest of typhic Phages, by example, does not cure the typhic, as he thought it would happen? The metabolic cycles of bacteria and of live cells of organized beings are so similar - at least some of them - that there would not be a fundamental motive that they multiply at the presence of live bacteria and in growing and not at the presence of live cells of animals or plants.

It is very probable that the phage, acting on the surface of the bacteria or getting through them, derivates an energetic cycle to multiply actively, obtaining that the bacteria release certain enzymes that it is interested in and aggregate it to their structure.

It is because of this that some Phages only attack bacteria with antigen Vi. What it is interested in is only these antigens that can become enzymes and not the cellular structure of the bacteria itself.

We are not trying to set a discussion about Phages being provirus or not. Still very far from knowing the secrets of the enzymatic activities - because there are cells whose enzymes are more than hundreds and whose mechanisms we do not know almost in their totality - we do not aim that there is a taxative separation between the concept of phage and virus, over all when we have established that a virus, as in the case of formation of variants in the virus of the glosopeda, can act also as a phage in certain circumstances.

It is proved that the Phages of low molecular weight - consequently with few enzymes - produce, in the culture of bacteria in solid media, big lytic bald patches, whereas the ones of high molecular weight - of major enzymatic complexity - produce smaller bald patches as their size increases.

Therefore, there is a relation between the size of the phage and its lytic activity, being curious that that the Phages of greater size own progressively less lytic activity. When it should occur on the contrary, since in a more perfect organization there should be a lytic activity.

As the enzymatic equipment becomes bigger, the activity of bacteria decreases, until, sensibleness, it passes from being a bacterial virus to a parasite virus of live animal cells or plants. This could have its explanation. The live cells of superior animals are gifted of a great number of enzymes, but due to the sharing of the physiologic work in these beings, they own quite less than the bacterial cell, that, because it is autonomous, has to carry complete enzymatic equipments to make multiple biochemical actions.

Because the Phages have little molecular weight, few enzymes are more in need of them than the ones of great volume, and, because of this they rest to the bacterial molecule they attack a great number of enzymes, which makes them more virulent to them.

The enzymes of great molecular weight, because they need less enzymes, allow the bacterial cell to be able to substitute the extracted ones, but on behalf on a wide mutation in its biochemical action, and, therefore, in its antigenic constitution. Due to the new adaptation enzymes that the bacteria puts into action in order to substitute the lost ones, the bacteria does not die, but suffers a vitreous degeneration or just a mutation that is more or less profound depending on the quantity of enzymes lost.

When the enzymatic equipment is completed it does not need to capture more bacteria from bacteria any more, and, it is in conditions of intercepting the metabolic cycles of live cells of organized beings.

Of course, it is clear that the fact of the completion of the enzymatic equipment does not mean they have acquired a superior grade of autotrophy, but, on the contrary, they have to start from defined substrates and previously obtained by alive cells as a consequence of their metabolism, but already from this substrate they can free energy.

If, going out of the field of the virus, we go up to the field of the germs, immediately more autotrophous, we see, by example, how the Pertusis Bacillus grows well around colonies of staphylococcus, and how, many other germs need factors that are in animal blood.

These factors they need are enzymes produced by the staphylococcus, in the first case, and, enzymes produced by blood, in the second case; as it happens in the germs of the Haemophilus.

We are going out of the links of the virus to the live cells because of peremptory necessities of substrata and because of defect of wideness of enzymatic equipments,

since its smallness demonstrates that they can not own a great enzymatic complexity, and we find other germs that although already can live outside the live cell, need enzymes produced by live cells, like the case of the Pertusis. In these germs there still are enzymatic deficiencies, and although they already use wider substrates, they still need a support or a help of enzymes elaborated by other beings in their metabolic cycles.

Another fact would confirm the concepts established until now. We know that gutter water, rivers and in general places where there are bacterial accumulations coming from numerous places are outsprings of Phages, virus of bacteria.

We find ourselves, then, in the same case quoted in the previous work, that the reunion of pigs of different background causes, in the majority of the cases, explosion with the apparition of the virus of porcine pest. It is logic that this occurs, in the case of porcine pest, by accumulation of numerous bacteria of different class and origin and the apparition of Phages in cloacal waters, gutters, rivers in the outskirts of towns, by the accumulation of bacteria of different origin. The mechanic of the formation is the same.

Therefore, well, the formation of the classic virus is much more difficult than the virus of bacteria, since its enzymatic complexity is much bigger. Virus and Phages are, then, autonomous enzymatic equipments that vitalize when they are able to derivate their own metabolic cycle of energetic detachment.

As they are very elemental equipments, they are, essentially heterotroph, needing, ones, the vital cycles of bacteria and the others, the vital cycles of superior animals. But, as bacteria are living cells, their only difference is in the amount of their enzymatic equipments and, in consequence, in their volume.

The phage, uses, then, the bacteria in two senses: one, to derivate its own metabolic cycles, that allow it to grow and multiply, and another, to aggregate part of its enzymes.

In many cases, the phage penetrates inside the bacteria and multiplies actively after having added new enzymes, and the bacteria, because of the increase of volume by the multiplication that is taking place inside of it, blows up.

In other cases, when the bacteria can substitute qualitatively the enzymes taken away by the phage with other that are complementary, but different, it survives, but on behalf of a mutation in its structure.

In other occasions, when the phage captures exoenzymes, the bacterium is not altered and there is neither bacteriophagia nor other visible phenomena.

There are still other considerations to make that refer to the formation in certain, determinate type of virus of bacterial forms of exit.

We have said that viruses are formed by protein little spheres associated in a unique mass, that constitute the addition of all joint apoenzymes and by series of coenzymes that can be found in the form of a slight mosaic membrane or in an appendicular form. Well then: we have been able to prove hundreds of times, and these were sorks done around 1942, that in certain viruses and in certain conditions, these complex spheres, which form the protean nucleus of the virus, grow and is surrounded by a membrane, and, in a show off of autotrophism, become bacteria.

In the virus of porcine pest, we obtained it several times in the form of a diplococcus coming from the transformation of the virus. However, this transformation has, as a consequence the loss of pathogenecity and the antigenic specificity. We have seen that this mass is formed by proteins; but these proteins are linked by a structure of ribonucleic acids or nucleotids.

It is, then, a structure of proteins of relatively high molecular weight associated with nucleonic acids for constituting a chemical structure of a desoxiribo or ribo nucleoprotein.

It is curious that genes have also the same constitution, because, although they form a physiologically well defined unit, cytological they would be formed by one or more active zones of polipeptidic chains and chains of nucleonic acids more or less extended and separated by inactive zones formed by other polipeptidic chains. The cromosomic gene has inside the volitive act of duplication, and starts in the cell the process of multiplying.

The virus and Phages that have the same structure, are also able to, in determinate specific conditions, start volitive a duplication of the matter. We are in front of the fact that a determinate physical and chemical structure in which proportionally and quantitatively certain combinations of polypeptides or proteins and nucleic acids intervene has inside a vitalization desire, accomplished practically when special circumstances concur.

However, this will be treated widely in the following work.

II. - CLASSIC VIRUS AND CANCER VIRUS II

January 20th 1959 - by Fernando Chacón Mejías

From the beginning of our interest on the virus, we were amazed by the fact of their fatal links to live cell. For quite a long time we were intrigued thinking what this circumstance could consist in and, in the end, we made ourselves some questions that, according to us, seem to clarify it.

1.- Why when a superior being attacked by a virus dies, these stop multiplying as if they did not have raw matter with which to synthesize own matter and serve their energetic and multiplication, while the bacteria existing in that animal take advantage of the death of this in order to multiply actively, invading it and decomposing it?

The answer was the following:

Because while the bacteria use for their synthesis liberation of energy and multiplication, all the organic components of a superior being, virus can not liberate energy nor synthesize matter belonging to this organic substrata, but of something that is produced during the life of the animal or vegetal being.

2.- If we take aseptically blood from a pork ill with porcine pest - which is produced by a filterable virus - and we introduce it in two different flasks, and one of them is put in the fridge and the other one in the stove of culture at 38°, in other words, at the temperature of the pig, it is inactivated fastly, while the one that was put in the fridge is active and ready to determine the illness 6 months later.

We thought that the correct answer was the following:

The virus of the flask that was put in the stove of culture at 38° ran out of something that was left in very little quantity as a vital residue in the cells, because at 38° the metabolic activity of the virus is big, and therefore, died, asphyxiated - in figured terma - by running out of residual raw matter that remained in the cell when the animal died. On the other hand, the one that was kept in the fridge, because of having a minimum metabolism at low temperature, took a long time in running out of it; that is why it is still active after 6 months.

After that, there came the third question.

3.- Which is the difference between a live cell and a dead cell that makes the live cell have raw matter to hold life and the active multiplication of the virus and the dead cell does not.

The answer was the following:

The difference is that in the live cell many vital processes are taking place - some accidental and some permanent - that do not take place in the dead cell. Among them, we have the glucolytical process of demolition of the glucogen by the respiration, the proteosyntetic process, the occasional synthesis of cromatids during the cellular multiplication, etc.

Logically, we had to think that the raw matter necessary for the development and multiplication of the virus was supplied by these vital processes not existent in the dead cell, among them, maybe because of being a more general process, breathing.

But breathing is not a simple phenomenon, but a complex one, and it consists in oxidative processes by supplying of the respired oxygen to a substrata of carbohidrates that are oxidable, during which the glucose in plants and the glucogen in animals is transformed, after passing through a first glucolytic process and through the cycles of Krebs, through the piruvic acid, malic, succinic, fumaric, isocitric, oxalacetic, etc. into lactic acid, in animals and into alcohol , acetic acid, etc. in the different types of fermentation.

Starting from molecule of glucose or glucogen, depending on being a plant or animal, and by successive oxidations, carboxilations, molecular escitions, are becoming ones in the others in a ordered way during the life of the animal or the plant, functioning as a liberated flux of energy by phosphorilations and dephosphorilations that hold the vital energy of the being and that disappear with death when the respiration stops and with it the liberation of energy.

These products of the escition of the glucogen and of its energetic and biosynthetic transformation exist in a very small quantity in the live cell.

RECONSIDERATIONS ABOUT THE FORMATION AND METABOLISM OF THE VIRUS

Fernando Chacón Mejías.

May, 20th, 1959

We have to stop again, before going on, in a considerations that derivate from the concepts established before, since there must be no doubt about their possibilities.

In the third work we have considered that while the majority of the classic virus, or all of them, used as energetic systems, the adenylic ribosic acids, being linked to other energetic systems, formed fundamentally by the adenylic desoxi,ribosic acids.

This difference of actuation of ones and others could spread doubts, and because of this we want to explain the circumstances of why things like this occur.

We can bring up several proofs; but we are going to base ourselves on one clear and determined fact.

Luis Pasteur observed that fungus or bacteria that grow in solutions of clustered combinations and that nourish from them, almost always consume one of the two enantiomorphous forms, leaving the other one without any alteration, and used this procedure to isolate optically active substances to the pureness state.

He proved that the *Glaucum Penicillium*, by example, leaves without alterations the levo form, while it assimilates the dextro form, of a solution of ammoniac racemate and consumes, however, the L- mandelic acid, L-aspartic and L-leucine.

It seems that the chemical combinations must join certain conditions of aesthetic configuration with the microorganism to be assimilated and the active forms that are attacked by the same fungus in equality of exterior conditions, have identical configuration.

So, we must not be amazed about the different way of acting on the different energetic systems of one and other virus because here, the ribose and the deoxy ribose that differentiate the two energetic systems have a chemical relation of relatives much more farther than the one that exists between the enantiomorphous forms of a racemic compound, and although here the question is not to consume it, but of using its energetic fountains, the case is the same, because there always will be the possibility or impossibility of liberation of energy of one of the two systems.

We have pointed out before that the likely necessity in order to use an active form has to be the esteric condition and to this purpose we remember that in 1911 Beard indicated that while in the normal cells albumin and the amino acids are levo and the cancerous cells are rich in albumin dextro amino acids.

If these dextro proteins were protein component of the virus of cancer or a consequence of its metabolism, we would have the esteric condition good for the utilization of the adenyl desoxy ribosic acid by the virus of cancer and the answer of the fundament of the different utilization of both adenylic acids by the different enzymatic structures of the virus.

Another conclusion that we have established in the third work was that the virus of cancer are slaves of the process of cellular multiplication, because only during the phase of chromatic synthesis and before the condensation of the desoxy ribosic nucleotids was when the desoxy-ribose adenylic acid was found free and could be used by the virus of cancer.

We also said that only in the case that a necrotic autolytic process was produced in the tumour, with the absence of the nucleus of the bad irrigated cancerous cells, could the virus get free from the cellular nucleus and pass to blood, since this process of autolysis carried out with it the liberation of the desoxy-ribose adenylic acid nucleotide and being this circulation out of the nucleus of the cells, could be captured and used, corresponding this phase to the period of spreading and tumoural metastasis.

These affirmations could be destroyed if one could demonstrate that this energetic system could exist in the blood of normal individuals and this fact was not exclusive of the process of tumoural autolysis.

Let's examine the different causes by which the desoxy-ribo adenylic acid could have circulated as a consequence of a digestive or cellular normal metabolism and let's see if we can state this affirmation or not.

Man consumes daily numerous food with abundant cellular nucleuses like meat, eggs, etc. that are fountains of desoxy-ribo nucleic acids.

If the pepsic or tripsic hydrolysis would get, in its performance only for excision the desoxy-ribonucleic acid in its desoxy-ribo nucleotids and as that would pass to blood after the digestive process, our statements about cancer virus would not be true nor they would be if, as a consequence of a normal nuclear metabolism, they would get free from the nucleus of the cells to the state of nucleotids.

The acid of the stomach and the pepsins release the albuminoidal fraction of the nucleus proteins that is digested with the other proteins of food. The freed nucleonic acid is not attacked by pepsin, getting as such to intestine where it is attacked by the nucleases and by tripsine, that first separate the phosphoric, degrading them to nucleosides and finally these nucleosides suffer degradation to the pentoses, purines, pyrimidines that constitute it, which pass, in this state, the digestive boundaries in order to intervene as such in the normal metabolism.

When the function of the pancreas (producer of tripsine) is nil, the nucleosides are not used, because they are unable, in this state, of being absorbed. It is deduced from here that the action of the tripsine for the total degradation of the nucleonic acids and that if it does not act, there is no degradation. It is interesting to fix this concept, because after it is going to explain interesting circumstances.

The tissues of the nucleus of all cells are rich in nucleonic acids, mainly in the form of nucleoproteins and, besides, all the cell have nucleotids that function as coenzymes.

In the cells, there are enzymes that degrade the tissular nucleonic acids and let free purines (adenine and guanine) and pyrimidines that form part of the common pyrimidinic and purinic pool, being simultaneously resynthesized the nucleic acids of the pool.

In the organism there is an adenylic pool that receives the 1.- Adenine set free of the food 2.- The liberated adenine of various forming parts of the cells, mainly of the nucleonic acids but also of the coenzyme acids and of the triphosphate of adenosine. The organism takes free adenine from the pool 1.- In bigger quantities during growing up and convalescence of certain illnesses 2.- For its conversion in guanine 3.- Some of it is wasted, transforming itself in uric acid.

Guanine and other purines (like hipoxantine and xantine)that have been absorbed by the intestine or formed by the organism, can not become adenine again nor be used by the cells in order to synthesis.

So, we have seen that the same when food that is rich in desoxi-ribonucleic is taken as when these acids are moved by the cells, the hydrolytic digestive destruction and the enzymatic of the cell stop desoxi- ribo- nucleotids of staying free, because these, before passing the nucleus membrane out or the digestive membrane in are totally degraded in their components, that isolated do not constitute energetic systems.

As long as the contrary is not demonstrated, our concept of the metabolism and energetic capture of the virus of cancer is correct in what refers to exclusive utilization for these goals of the deoxi- ribo- adelinic acid or maybe of any other desoxi-ribo nucleotide.

It stands so, as a consequence, that the deoxi-ribo adenylic acid is only found at disposition of the enzymatic equipments of the cancer virus in the act of the cellular multiplication inside the nucleus, and, in the case of tumoural autolysis, circulating through the economy.

If we pay attention to this conclusion, we will be puzzled by the fact that we state it after stating that the desoxi- ribo- nucleic acids are totally degraded before passing the cellular membrane, and therefore, even in an autolytic process they would be degraded.

We also saw before that the causes of these degradations are the tripsine and other tripsic cellular ferments. We would find ourselves in a lane with exit and we would have to abandon these ideas. Fortunately, it stays explained by the circumstances that are exposed in the following lines.

Brieger, Trebing, Bergmann, Meyer, Herzfeld, Roche and others, without having arrived to the correct interpretation, demonstrated that in the blood serum of cancerous patients and in the filtrations of tumoural lisates there is an anti tripsine, in other words, a ferment or antitrypsic enzyme.

There no existence of the antitrypsic ferment in normal individuals demonstrates that it is produced expressly by the virus of cancer in order to avoid the degrading action of the tripsine on nucleotids, since if all the resultants of the autolytic process were totally degraded, the virus of cancer would be able to have energetic circulating systems and the phase of metastasis and viric septicaemia would not exist although the one of caquexia would start from a progressive growth of a unique tumour. Metastasis would be produced, in this case, only by graft of tissue of the primary tumour, passing accidentally to the circulation of cancerous cells that would get set in another place.

It is true that even with the intervention of its antitrypsic ferment they do not obtain the cancer virus to avoid totally the tripsic action of the cellular enzymes since Neuber found in the carcinoma and in the hepatic metastasis a 70 or 80 percent more of pentoses than in the normal liver, and this pentoses must be the product of the

autolytic degradation of the cellular nucleotids as a consequence of the tumouration, unless they refer to the resultant pentoses of an artificial hydrolysis of the tumoural tissue. But the truth is that great quantity of nucleotids would pass free to blood and to this purpose the greater or smaller antitryptic action of determined virus would be in direct relation with its malignity, since the greater quantity of free energetic systems, the greater the invasive capacity is.

In another order of considerations, we are going to examine other circumstances intimately linked with the conclusions that come out from the previous works.

Petris, Wolf and Beebe demonstrated that there are neoplasias in a greater content in nucleoproteins, at the same time of a greater incoagulable quantity of proteins.

We remember having said that the proteins that constitute the enzymes and, therefore, that start forming part of the enzymatic equipment of virus, are proteins of a relatively low molecular weight, being able to identify in the group the histones and protamines incoagulable by heat.

These proteins would give, therefore, to the virus of cancer the chemical quality of the desoxiribonucleohistones or desoxy-ribonucleoprotamines, and, precisely the nucleohistones are abundant in the majority of the tumoural tissues, following the observations of Beebe and Bang, who obtained them precipitating them in the water solutions of neoplastic masses with calcium chloride.

That these type of proteins - proteins formed by dextro- amino acids are specific of the tumoural cell, and therefore, a consequence of the presence of the virus, would be demonstrated by the observation of Beebe that the purified nucleoproteins of a leucemic lien produced a serum that joint the emulsioned cells of this lien and the ones of the lymph sarcoma, but not of the cells of the lien or of other normal tissues.

We deduce from this the existence of a cancerous cell of:

1.- Greater quantity of incoagulable proteins of relatively low molecular weight. 2.- Of dextrogiro type 3.- Of abnormal character, as it was put in evidence by the specific agglutination of Beebe.

All this demonstrates us: 1. - That the increase of the histones and protamines is due to the intracellular supply of the enzymatic equipments, strange to the cell (the ones owned by the virus) 2. - That the apparition of the proteins of dextro type in the cancerous cell must be a consequence of an esteric property of the cancer agent adapted to its special capture and utilization of the desoxiribo adenylic acid.

It is true that some similar virus and agents multiply inside the nucleus of the cell, getting to occupy it completely - as in the case rickettiosis already observed many years ago by us in histological cuts of the kidney of the pig - and maybe they also could use as energetic systems the desoxiribo nucleotids; but there is a fundamental difference that consists in that while these rickettsias would own enzymes able of hydrolysing as energetic systems the nuclear desoxiribo nucleoproteins, and therefore,

to free the desoxyribo adenylic acid, in order to be used inside the nucleus, the cancer virus lack these hydrolytic enzymes and for capturing the adenylic acid they have to wait until the cell multiplies or to force its division by the procedure of irritating the nuclear reticulum until they obtain by chromatic condensation and the following mitosis, a series and uninterrupted induced multiplication.

In order to the formation of the virus, we forgot in the previous works to refer ourselves to an observed datum by us that makes perfectly understandable its formation mechanisms.

The datum is the following: In the wide zone in which we develop our professional activity, the porcine salmonellosis does not show up, naturally. We have never seen an isolated case, apart to the ones that we are going to refer ourselves. This has taken us, as a consequence, to employ systematically a simple bacterium against the porcine septicem instead of employing in the preventive vaccinations a mixed bacterium.

This circumstance has taken us to be able to observe reiteratively a circumstance that along the years and the deep observation has demonstrated that happens because of the same causes.

It is known by all that in the serum vaccination against porcine pest a protector serum is used and a dose of virulent blood taken out of a pig in the feverish period of the illness, as a consequence of a previous inoculation of the pest virus.

Employing similar serums - as we said in the first work - the virus is neutralized totally and an active immunity of great solidity is established.

Well: we had been observing in some cases that some pigs, generally few, about the fifteen to twenty days after the anti-pest vaccine, got ill and died in a short time with a very reddened skin. This happened almost always with young pigs. Done the corresponding cultures, we could prove that it was the *Bacillus suispestifer*, salmonella cholera suis, type Kuzzendorf.

As we were puzzled by this circumstance, we dedicated, at the beginning, our attention to explain this fact, and we related it with it repeated itself with the antipest serum-vaccination.

We could prove right away that the isolated salmonellas of these cases were rich in Vi antigen, and also that, although with a very low title, they gave an agglutination of somatic type with the antipest serum, while other strains without antigens Vi did not agglutinate with the same serum at the same title nor at any other.

The interpretation of the facts is the following: We said, when we talked about the Phages and the virus, that in order that the bacterial enzymes tend to associate forming an autonomous and complete equipment or an incomplete one, there was a need of an induction, and that this induction could act under the form of radiations, ecologic factors, antibiotic induction and mainly under immunologic induction.

Let's remember, to this purpose, that we said that when an organism or superior being acquired immunity against a determinate bacteria because of having suffered an attack from it, its enzymes tend to abandon the bacterial structure and they looked for the complementary enzymes located in other enzymes, to constitute incomplete enzymatic equipments or Phages or complete equipments or virus.

Well then, now we are facing the opposite case. We have proceeded to the antipest serum-vaccination and the enzymatic equipment of the virus of the pig pest is fixed and neutralized by the antienzymes of the serum.

We are talking here of the antienzymetic immunity, because it is an immunity of this type. The enzymatic equipment of the virus, at this attack, tends to spread so as to escape from it, and, if one of its enzymatic fractions finds, before being destroyed, the bacteria from which it originally proceeded, it penetrates in its interior and modifies the bacteria in an inverse sense to the formation of virus. In the case of formation of virus and Phages, the bacteria gave out enzymes or it was attacked by a phage that produced its degradation or its lysis, resulting, at last, that the bacteria lost its Vi antigen.

Now it is the Vi antigen the one that by opposite induction to the previous looks for a refuge inside the bacteria, giving it back its virulence and aggression.

The nil pathogen salmonella that parasites the pig, when it finds its antigen or enzyme of pathogenic action, becomes a highly virulent form and this occurs immediately after the pig antipest immunity has been set.

These facts occur like this in a certain number of cases, in which the pigs are parasited by a salmonella that is little or non pathologic, it is provable by everybody with a little spirit of observation and being already informed, we hope it is confirmed in multiple occasions.

With this consideration we state as finished the part that refers to the formation, nature and metabolism of the classic virus and those of cancer.

THE VIRUS OF CANCER - NATURE AND CLASSIFICATION

Fernando Chacón Mejías. June 5th 1959.

Basing primarily our studies in the observation of the circumstances that appeared in the classical virus, we proceeded to adapt the established conclusions in the study of them to the virus of cancer.

However, little by little, we started realizing that we were facing a problem of a different nature; that these virus and basically the producers of carcinomas, did not form themselves the way the classic did.

So, we were before a new series of facts that we ought to explain and little by little, the fog that wrapped us started disappearing, after long hours of work, allowing us to

see in all its reality the terrible monsters that sawed during centuries infinite human lives and that resisted the effort of many men that were magnificently able and who handled powerful mediums.

We concluded and determinate experimentally the remarkable difference there is between the classic virus and the virus of the malign tumours of man.

And more: if we take as a virus only those that are formed by the mentioned mechanic in previous works, they really are not virus; but, if we consider as virus those agents that act as pathogen at a sub-microscopic level, they really are virus, although they come from the reduction of microscopic microbial forms, or they are invisible cycles of visible forms.

Before beginning the systematic description of what we could call "mother forms" of the virus of cancer, that we will begin to do in the following work, we have to say that not all virus follow the described mechanic in previous works, and to demonstrate it we dedicate the first part.

We are going to establish a classification that takes into account the formation mechanic of the different virus.

They can be distributed, to this respect, in three groups:

1. - The ones that in their formation have followed the procedure of enzymatic aggregations, through phagic capture or not, of enzymes that come from different microbial groups.
2. - The ones that appear due to a reducing mechanism starting from only one microbial specie.
3. - The ones that represent a phase of the biologic cycle of a Protomyces in the cases we are interested in, and maybe from other Protoascades, in other cases.

One deduces from the previous reasoning and from the above classification that in the first group we can have many combinations and, among others, the following:

1. - Virus formed by the aggregation of enzymes that come exclusively from bacteria.
2. - Virus formed by enzymatic aggregations that come exclusively from fungus. Improbable case.
3. - Virus formed by the mixed agrupations in teams of enzymes that come from fungus and bacteria.

This has to be considered in a wide sense, because we know that one passes from the field of the bacteria to the one of the fungus.

The virus of the first combination would be transmissible in series; the ones of the second would not be transmissible and we only give them a theoretical existence, because although at the beginning we thought that like them would the carcinogenic virus be, the experience and the results obtained have demonstrated that this does not correspond to reality, and, at last, the ones of the third combination or mix virus, which would produce transmissible tumour in series, like the ones of the contagious mixomatosis of the rabbits, the contagious papilloma of Shope, also of the rabbits; Rous' sarcomas, of the birds, and, the infectious fibroma of Shope, of the common american rabbit. In these concrete cases, the enzymatic bacterial fractions would give the virus the utilization of adenilic ribosic acid and therefore the transmission in series, and the enzymatic fraction of fungus or actinomices, the utilization of the deoxiribo adenilic and therefore the faculty of provoking neoplastic proliferations.

Little has been talked about phagic phenomena on fungus; but, since the industrial production of antibiotics has acquired importance, there has been the necessity of preserving the culture of Penicillium and of other Streptomyces of the specific action that destroy them, carrying with them the lack of use of the contaminated tanks. The existence of phagic phenomena on fungus makes us admit the possibility that there is a formation of virus in which the fungus enzyme intervenes or actinomices captured by phagism.

But this is not the group that is going to interest us from now on, but the other two, the ones of the virus that are carcinogenic, not transmissible in series.

With these deductions about classic virus or of the first group we say good bye to them. They served us as a medium station in order to launch ourselves on the ones of cancer.

Now we go into a less complicated world - ! Sad irony! - than of the classic virus.

Starting from a classic virus, it is an almost impossible work to prejudge which were the bacteria that gifted them their enzymes, it is a new being, created almost from nothing in collaboration with several bacteria.

Starting from a cancer virus we can find out quickly which was the microscopic agent that gave it life, because starting from virus, we can, in an illusion game, recover the microscopic agent from where it comes.

But we are going to go into the necessary thinking in order to get to the exact knowledge of its action mechanisms.

All cells, and therefore unicellular beings, are made fundamentally of protoplasm and a nucleus, and between them, of course, bacteria and fungus.

The protoplasm is as fundamental to the nucleus as the nucleus to the protoplasm. One occupies itself of the metabolic and relation functions and, the other, of the germinal functions, assuring the continuity of the specie.

The nucleus owns genetic units that constitute the chromosomes and the more hereditary characteristics it has, the more of those it has.

In superior animals, the number of chromosomes is quite high, but in microscopic beings this complication simplifies, staying reduced to the enzymatic genetic equipment to only one gene or to a quite rudimentary genetic structure.

Well: there are microscopic beings, the same in the field of bacteria than in the field of fungus, that, in special circumstances, suffer a reducing process, losing all the somatic part and, therefore, the protoplasm, its membrane or even part of the nucleus, staying only the isolated gene.

But the isolated gene is a virus, because the gene - and this concept was already established in previous works - is an enzymatic genetic structure, in other words, an enzymatic team able of capturing energy and deriving a own cycle with which it grows and multiplies.

But we have said before that a nucleus, and less an isolated gene, can not live without the cooperation of a protoplasm, and it is clear that in order that the microbial agent decides itself to make the reducing phenomenon it has to count on a protoplasm that substitutes its. Due to this circumstance, this reduction takes place in live cells of animals and plants because the protoplasm of these cells substitutes the one of the bacteria or fungus already rejected, and due to this, once the process of reduction is already done, in other words its transformation into virus, they have necessarily to be cultivated in live cells.

At producing the reduction, they reject their enzymatic protoplasmatic equipments with which they took care of their life of relation with the medium; they reject the enzymatic equipment that did the respiratory or oxidation function, but they eliminate them, because the live cells breathe for them, because the live cell, with its own cycles, holds its germinal energy.

All this process explained belongs to the virus classified in the second group.

In the third group, there is no reducing process but the persistence of close cycle of filtrable forms that belong, also, to another wider cycle of the evolution process of agents of the gender Protomyces.

The study of the cancer agents of this type, that are presenting themselves in a great percentage of cases, will take place in the systematic part.

In order to have a general idea about them - because in the corresponding work they will be studied in detail - we are going to give the pertinent data for their biological positioning.

The gender is positioned in the Endomycetacea Family, Protoascades Order, and Classification of Wettstein, whose order holds the Sacharomycetacea Family too.

The order stays defined like this: with filamentary mycelium or not and without any production of fructiferous corps. Fecundation process by copulation of little mycelian branches or cells of the same form or diverse form (differentiated in ascogonium and anteridium): the product of the copulation or the fecundated cell transform directly in asco. Ascospores born directly from fecundated ascogonium without forming hymenium. There is no alternation of generations and, they are haplonts.

The genera *Eremascus*, *Endomyces* and *Dipodascus* belong to the Endomycetaceae Family. The systematic position of the Ascoidea and *Protomyces* genus, parasites of antofites, is uncertain; of both genera the fecundation processes are unknown.

This is what is known of the Genus *Protomyces* up today. When the moment arrives, we will study the fecundation processes of the producers of tumouration in man, seen many times in blood cultures of cancer patients.

Let it be enough, for now, that their ascospores in fresh blood, in examination in fresh, are impossible to differentiate from the red globules. They only have a more brilliant greenish reflect. Their peripheral globules are identical to the granulocytes and, at last, their spores act in a closed cycle as virus in the tumoural cell.

They do not cultivate in any currently known medium, and only after hundreds of trials in diverse special mediums of culture, which has been the most exhausting task, we have obtained that they cultivate and multiply actively.

All the previously established conclusions about the metabolism of the virus of cancer can be applied to the spore phase of the *Protomyces*, because really, due to their submicroscopic closed cycles they have to be considered as virus. In order not to confuse them with the classic ones, we have set them in a third group.

We are going to explain the fundamental part that has taken us to interpret and determine the aetiology of the cancerous processes.

We have made a brief study of the procedure of reduction of the virus of the second group and cycles of the third one and, at comparing these groups with the first one, we get to an immediate consequence, which is the following:

As the first group is formed by enzymatic aggregations that come from different bacteria, it is logic that they do not reproduce again ever - in a somatic recovering process - the bacteria that originated them and, in case an exit germ reproduced from them, this will not remember the donors and will lose its specific action mechanisms, because of the simple reason that these "exit forms" have lost their enzymatic antigen of virulence. Because of the same reason bacteria with antigen of Vi virulence lose them in the artificial mediums of culture. This carries out as a consequence the loss of virulence and antigenicity of the "exit forms" of the virus of the first group or classic virus.

An example of these "exit forms" is the porcine pest virus, denounced by us in the year 1942 in the Animal Biology Institute, and which we denominated Diplomyces and that presents itself under the form of diplococcus.

In the case of the virus of the second and third group things happen in a different way.

We saw in previous works that the structure of a gene and of a virus were identical. We also saw, and remembered to the effect the case of the alcaptonuria, and that these effects were of lack, because they were due to the lack or defect in some enzymes, and that these illnesses were inherited.

This supposes necessarily that a gene decides about the presence or absence of a determined enzyme that functions outside the nucleus, because its proenzyme must be supplied by the protean fraction of the gene that functions as a precursor of enzymes. One can deduce from this that in the gene must be represented in the form of precursors the protoplasmatic enzymes able to perform synthetic functions and, among them, the one of rebuilding the soma in a certain moment and under special circumstances.

These special circumstances can be specified. We know that a precursor is not an enzyme, for the same reason that we know that a pro-hormone is not a hormone. In other words, the precursors lacks enzymatic activity, because it is the protean part, called in the enzyme, apoferment. But if we give to these genic proenzymes their corresponding coenzymes, their synthetic activity starts, that in principle drives to the rebuilding of the soma that was lost during the reducing phase of transformation of the virus.

We saw before in what consisted the reducing mechanic of the virus of the second group, and, we have said that the reduction affects all the microbial agent, but not its gene or elemental genic structure. In consequence, it comes up from all the previous reasoning, that although a virus of the second group is a microbial agent that has come off the somatic part, it is represented in the genic equipment and that if this virus or gene comes from a determined microbial specie, if it gives an exit form, this one has to be necessarily the origin specie.

These inversions of the phenomenon of reduction in the virus of the second group, that are possible in certain conditions, give out what we call "mother forms" of virus of cancer. We have obtained to determine exactly which and how many they are and, consequently, how many and which are the virus of cancer.

In the virus of the third group things are simpler, because it is only to interrupt the closed cycle of the invisible form which gives place to the apparition of the visible phase of the cycle.

After this reasoning, we suppose that nobody will think it is necessary for the study of the virus of cancer the electronic microscope.

But, let's start the general study of the "mother forms".

Beginning with the blood of ill persons it is possible to determine exactly the type of virus that is producing the process. Some "mother forms" more and some other, less need, in order to carry out the process of "going back to somatic form", special conditions; but, when they are put in these conditions, they can always be recovered starting from the viric form, and, not only decide the diagnose, but, as we have said before, determine exactly the type of virus.

At the systematic description of the virus of cancer, as it is logic, we are not going to refer ourselves exactly to them but to their "mother forms" and we believe that, after the explanations, everybody will remain convinced that it is the fast and exact way of studying them.

As it follows from what is stated above, there will be two different types of "mother forms": the ones corresponding to the second group and the ones that correspond to the third one, in other words, the ones recovered by inversion of the reducing process and the ones recovered by apparition of visible forms of the biological cycle of the Protomyces.

These mutations have been observed by us numerous times in culture of "mother forms" and have given as result the apparition of another different microbial form belonging to the series, which has been also isolated directly from the blood of cancer patients.

There has been a long time since we know these "mother forms" and all the ones that we continue isolating have an exact coincidence with the ones isolated before.

The existence of mutations inside this virus of the second group and the fact that these mutations are easily provoked by immune induction puzzled us at the beginning, when we had not observed them yet, because by using monovalent vaccines we obtained magnificent recuperations in patients through our clinic collaborators, but after, they relapsed without solution. By testing this chain of mutations that was produced in the "mother cultures", we understood perfectly what was happening in vivo. These relapses have been avoided employing inactive polyvalent vaccines with inclusion of all the virus of the second group, which blockades the possibility of mutations in vivo. The clinical results have demonstrated with all certainty what experimentation had demonstrated us in the laboratory.

The virus of the third group, or better, their "mother forms" were first cultivated in the month of February of this year and it would not be at all strange that they came from mutation of the ones of the second group, although we have not been able to demonstrate the latter yet.

The last one that we have been able to isolate and that seems to differ from the ones of the second and third group, is a human sarcomatose virus. Its "mother form" is a thick levuriform diplococcus. As we go further on its microbiologic and clinical study, it will be included in the systematic part that will start in the following work.

At last, we would like to make some considerations.

We have seen in the development of these works that virus in general and those of cancer in particular, are enzymatic teams. These enzymatic teams are in the cancerous cell mixed with the own enzymatic teams of the cell.

Their structures are so alike that, at all effects, the causes that affect them have necessarily to affect the others. Any therapeutic remedy of chemotherapy nature that is presented against cancer has to accomplish the condition of destroying the enzymatic teams of the virus, leaving intact the ones of the cell.

But this is impossible by chemotherapy, because both teams are attacked or none.

But there is only one way, and this way that we previewed a long time ago, it the way of the immune-therapy, that creating anti-enzymes that are specifically selective, produces a specific destruction of the enzymatic teams of the virus of cancer and respects the cells.

As it is a long-process illness, it is perfectly possible the progressive acquisition of a resistance state and, to this respect, the possibility of cure are inverse to the gravity of the patient.

III. - PATHOGENY OF CANCER

January 20th 1959 - by Fernando Chacón Mejías

When a group, associated as a specific entity, is sexually differentiated - man, animal or plant - and is directed by the blind light of instinct - with or without affective concomitant circumstances - towards the representative of the opposed sex, it only accomplishes one first mission that ends with contact.

After, the germinal cells spread from one of the sexes go and meet the other of different sign and accomplish the second mission which ends with the building of a new being.

The germinal cell that is taken off, despite its scarce size, has the representation of all the characteristics: morphologic, etc. in order to build a new being. As in the reaction planes, it has enough fuel which gives it energy for saving the huge space that separates it from the ovule, but it also carries a receptor that gets the electro-magnetic waves, with the only difference that those fail many times, and the others never fail.

But why do these cells gotten off us accomplish this mission swimming desperately in the search of a finality and acting as if they had willpower and own personality?

Why do they pass by numerous vegetative cells that do not act on their orientation "apparatuses"?

Because while the vegetative cell are de-polarized by owning for each chromosome and for each gene, another that is twin but of different charge that neutralizes, the germinal cell is polarized because the genes have not been neutralized by others of opposite charge. The cromosomic equipment of the ovule with polar energy of a sign sends to its surroundings waves that are received by the spermatozoids and this goes to neutralize its own charges with a vehemence that demonstrates that for it is a necessity.

This not only happens here, because we see that many anions or cations abandon their partner in order to search another that because of its bigger electric load requires them and we see them, too, in the fleeting life of the chemical radicals.

In spite of everything we have written in the previous five works, we had the evidence that there were still things to explain. We have explained the nature of the virus of cancer and their metabolism but there was still a problem ahead and it was that it came up a little unacceptable that the virus of cancer could catch on in any cell in multiplication.

Little by little a suspicion has arisen that we think it is interesting to the point that delays the apparition of the systematic part of these works once more.

The rapidly progressive march of our investigations provokes the apparition of logic consequences that we have to try to interpret adequately in order to form only one body of doctrine.

We will try to explain with the greatest clearness possible the circumstances that have made sprung these new ideas and we would like you to fix clearly the concepts of the first paragraphs of this work first.

All we know that the behaviour to all effects of the vegetative cell or diploid is totally different from a germinal cell or haploid.

The difference stands, as it is known, in that in one case there are half the chromosomes than in the other, because there has been a mitotic reduction.

We agree then, in that the germinal haploid cell attracts the contrary by electronic load, electromagnetic, or whatever, of different sign.

We have, then, two types of cells, some quiet or of neutralized load, and, others, anxious, or of loads that are not neutralized and that tend by reunion and neutralization to become quiet.

Genetics knows perfectly the causes that can modify the cromosomic equipments of the germinal cells - as long as the modifications are not lethal - through a study of sons that denounces with clearness that modification in the structure and position of the chromosomes has taken place.

The actions of X rays and radiation are known, by example. The influence of some products of chemical nature is also known.

Another type of alterations of the germinal cells is unknown because they carry the lethality of the fecundated ovule.

Now we are going to try to define what a gene is basing ourselves in the conclusions that we have arrived to.

"A gene, chemically considered is - as we said in the first works and everybody knows - a structure in which the deoxy-ribonucleic acid and the proteins of relative low molecular weight intervene, identified with poli-peptides. This structure is placed in the space in a form that acquires polarity, which the genes tend to neutralize."

Any substance of chemical nature or any action of physical nature that produces the falling in of this structure carries out the de-polarization of the gene and, therefore, its destruction as such.

But let us leave the germinal cell and let us dedicate ourselves to study the effects that these same physical or chemical causes can produce in a vegetative cell.

In the germinal cell we have seen that these effects are can be studied through a study of sons and daughters but in the case of the vegetative cell we are in front of the impossibility of denouncing the alterations through a study of this type.

However, we have to admit necessarily that the same things can happen. In other words, that the radiations of physical nature and the actions of chemical nature have to act on the diploid equipment of the vegetative cell the same way as they do on the cromosomic diploid equipment of the germinal cell.

Let's put the following example that will be easily understood:

if the action of radium of the X rays, of the colchicine, of aniline , of tar and other multiple substances brings with it the destruction of a gene in the somatic cell, the other homologue par gene has become an haploid gene and because of the lack of neutralization, it has polarized.

We have, then, as a consequence the apparition of a vegetative cell partially polarized, and this polarization, the same as the concrete case of the ovule, gives place to electromagnetic waves?

It is helpless calling a gene that de-polarizes it, which will never come, unless ... this unless will be explained later.

We already have an abnormal cell, an anxious cell, a tiny broadcaster, in short.

In a germinal cell this would mean a lethal action, but not in a vegetative cell, since the enzymatic precursors that its protean fraction supplied for the metabolism of the individual do not represent anything in front of the great mass of similar genes that continue functioning in the rest of the c

If the destroyed gene belonged to the spermatozoid, the polarity of the cell will be of one sign; if it belonged to the ovule, the polarity will be of the opposite sign.

With these ideas we have accomplished the first phase of the work and now we start we the second phase.

We said in the fifth work that the protomyces had a sexual cycle formed by ascogonic cells that functioned as ogonios and that there were also haplont anteridia.

These anteridia are easily seen during a short period of time in certain phases of our cultures.

Because of their simplicity they can only carry one haplont gene. This haplont gene, the same as the spermatozoid, captures the small broadcaster of polarized cell and if the nature of the wave is perceived is of the opposite sign than its, the same as the spermatozoid walks without stopping in search of the ovule, the anteridium walks in search of the gene orphan of the vegetative cell.

The coupling is the only thing that is left, and when this is produced, the gene depolarizes, but the depolarized gene now demands deoxy-ribonucleic adenilic acid and this brings out all the facts stated in previous works.

We see now explained the tumours of the radiologists, the tar cancer, the one of the chimney cleaners, the one of bladder of the painters and the one of the workers of the aniline manufacture industries, the enormous proportion of leucemic children among those whose mother was observed by X rays in the pregnancy period; the apparition of lymphogranuloms - besides the circumstances already explained - those that because they suffered fimic processes, were observed numerous times through the screen, and also lip and pharinx cancer of smokers, due to the action of the alcaloid, of smoke, of soot or tar of tobacco.

Radiotherapy, radar, roetgenotherapy, and also diagnosis through X rays, some types of industries that load the atmosphere of substances that alter of cromosomic peace, social every day life of our times, the escape tubes of vehicle of heavy oil, the invasion of new chemotherapy products, whose organotropa action may be perfectly studied but not their action at distance as producers of cromosomic alterations, make of Humanity a victim of cancer.

It is the illness of civilization and of industrial progress.

But there still can be factors of physiological nature that we are going to try to explain.

In endocrinology they do not study the greatest endocrine cell with which the organism counts, and when they arrive to this conclusion and they go deeper in its study, internal medicine will base itself in more firm grounds.

We said that proteins, joint with the deoxy-ribonucleic acid, form the gene. They are real enzymatic precursors and we have seen that between the hormone and the enzyme in many cases there is only the difference of using, by system, two different words.

If we gathered all these pro-enzymatic proteins in a block, we would have built the biggest endocrine gland of the organism.

So: we know that among the structural elements of the cromosomic equipments of all species, and, of course the human race, there are sexual chromosomes X and Y.

These decide sex. In spite of being so small they impose their rule in such a way that one is born man or woman. They carry the secondary and primary sexual characteristics in combination with the sexual glands and hypophysis.

From birth to puberty this activity specifically sexual is broken by inhibitors that probably come from thymus. When this disappears gradually, the sexual activity starts, also gradually.

Inter-sexuality, feminism in male and the inversion of sex in vertebrates are deviations that can be induced by causes that act on the gametes before fecundation.

Bovine breeders know that in twin gestations, when the twins are of the opposite sex, the female results sterile in many cases.

English call these female Free- Martin and it is very probable that they are, in this case, the enzymatic precursors of the proteins of the sexual chromosomes of the male the ones that, by existing at circulatory community, modify the precursors of the female, driving her to a sterility in her chromosomes.

Pador (1938) and Dautchakoff (1938) certainly believe that genes produce hormones similar to the ones elaborated by the adult gonads and that they would be the primary differentiators of sex.

So, it seems certain, that some genes of the sexual chromosomes do a regulation of enzymatic-hormonal type of the sexual activity, although this has to be translated through the sexual glands and associated to them.

It also results probable that it can not be interpreted in a unitary and simple way, because there are in each individual and maybe linked to different hereditary factors, physiological grades of sexuality that are located in the corresponding gene.

Being so, maybe the direct intervention of certain genes in the operating sexual activity in the space that is between puberty and old age, and we have to admit that the gene that regulated this activity decline its function at old age.

This loss of activity can determine the corresponding gene to disappear.

If this act of disappearing is simultaneous in the two twin genes, the polarization does not appear, but if one of them disappears, staying the other, this one polarizes starting the broadcaster to work. The cell has become this way a carcinogenic cell.

Maybe we are on the track that the mutations observed with al clarity among the different "mother forms" of the cancer virus are because a common anteridium can fecundate different oogonios, giving as a result the coupling to the apparition of diverse forms that apparently come one from the other by brusque mutations.

It should be the observed anteridium that probably only supplies a gene - of a genic porter acceptable by oogonios of different nature and acceptable also by the somatic cells partially polarized.

Here we finished. In the next work, if new circumstances do not happen, we will start the systematic of the virus of cancer or, better said, of its "mother forms".

FUNGUS, VIRUS OF CANCER.

September 20th 1959.

Biological zones of instability

We were used, as it is every microbiologist, to see that the microbial forms that we study, are more or less without change; and when mutations exist, they refer to changes in forms or antigenic modifications that do not affect fundamentally the structure of the species, being able, besides, to recuperate the original forms by different techniques.

Being used to see things like this, we had to get a hold of a lot of patience and walk through this movable ground until proving that things can also occur in another way.

In order to walk on these roads it is necessary, as a determinant factor, to get rid of prejudices that, because they are transitorily orthodox, may influence our mood, rejecting ways before starting them.

The lack of somebody else's influence, the endless hours of work, the experimental objectivity, a vast casuistry and the help of God, have made us walk firmly on this ground where everything was unstable, where the rigidity of classic microbiology fails completely.

We can not make with them a microbiologic museum the style of the existing in North America, England and France, because, in some time, the contents of the culture would not correspond to the label.

It is possibly this circumstance the one that has caused that the problem of cancer has not been solved until now and maybe it's main and fundamental characteristic.

We have obtained, however, by improving the media of culture, a limitation in mutations and, with the last medium of culture prepared, the recuperated forms, directly from the patient are maintained without mutating.

This has led us to the demonstration that the fungus viruses of cancer that act in vivo are exclusively protomyces in their different species.

Species that can be studied and differentiated due to the morphological and developing visible variations.

The ones that in the 5th work were classified as virus of the second group - with the exception of a budding, even and brilliant pseudo-yeast that corresponds to the cycle of one of the protomyces species - are mutant forms in vitro, and these mutations were fundamentally due to the composition of the culture media.

Working with more suitable media, we have gotten to avoid that protomyces mutate and, at the same time, we have convinced ourselves that the mutations were due to

the necessity of using a fountain of oxygen different from the one they use in the ill person and a proof of this is that the first mutations that are produced give as a result the appearance of micro aerophil agents that grow in the bottom of the medium of culture on the added blood of the ill person, using the the hemoglobinic oxygen. A second mutation of the micro aerophils gives place to forms that tend to grow on the surface using the oxygen of the air and that gives the air micelium.

If the medium is yet simpler, then agents that from the beginning grow on surface appear. Mutations have depended, therefore, fundamentally of processes of adaptation to the utilization of different fountains of oxygen, in some cases by mutation and progressive adaptation and, in others, by sudden mutation.

It is very probable that these mutations were obliged because of the lack of determined coenzymes in the medium of culture. Coenzymes with which they count in vivo and with which the utilization of oxygen of haemoglobine and the one existent in plasma and cellular juice results possible, due to different tensions of pressure with the carbonic anhidride.

In the new mediums of culture we have not observed more mutations, evident sign that by using the protomyces the combined oxygen it does not have the necessity of mutating.

With mutation occurred something similar to the following example: in the dry distillation of soft coal, numerous aromatic chemical corps appear, but many of these substances are missing in the proto tar or tar at a low temperature, demonstrating with this that the majority of the compounds that are obtained of the soft coal tar through dry distillation do not exist as such compounds in soft coal because of the pyrogenation reactions.

To this respect we have to conclude that the cause of the neoplastic processes, are exclusively the protomoyces and that the rest appear as a consequence of the mutations provoked in the culture mediums in a biologic process of adaptation to different circumstances to the ones that occur in the tissues.

Although, as a consequence of the demonstration of the filterability of the protomyces - extreme that will be explained later - the different mutant forms have lost importance and currency, we are going to give a small summary of them so that the ones that start studying this issue know which agents are the ones that are directly related or are products of mutations and which are the original forms.

Non mutant types or direct cancer agents.

Unique type: PROTOMYCES.

In this gender, the anteridiam is common in all species and we can consider the following morphologic types:

- a) Top thin mycelium that spread diplococcus of bacterial type or aspect, whose diplococcus resist in culture the action of all antibiotics.
- b) Mycelium that spread thicker diplos of levuriform type.
- c) Similar to those above but they go on increasing size after, until they form pseudo-yeasts that are lysated, brilliant and characteristic aspect.
- d) Mycelian formations in which we see spheres similar to small ascas being surrounded by a reddish transparent halo, probably because of the presence of a pigment.
- e) Compact mycelian formations with irregular mycetomic granules that, once independent, become parasites of the eritrocytes.

Types obtained by mutation of the protomyces - Streptomyces, Nocardias (in mobile and not mobile forms.) and of clamidosporaceous fungus, one that develops in the form of cotton masses, round or spheric, whose sphere goes growing little by little and first in the blood on the bottom of the medium of culture, getting used to grow on surface with the time and to give out air myceliums. These air myceliums are, at first, white, but after quite a long time they become green pigmented.

The other clamidosporaceous fungus does not form cotton like masses. It always grows in the bottom of the medium and spreads levuriform spores and, by sexual conjunction of the micelian branches, gives place, at the contact points, to the apparition of micelios similar to those of the protomyces that resolve themselves in diplococcus of bacterial type.

Directly related with the Norcadias we have the bacillus described by Schuerlen, that we may be able to identify with the subtilis bacillus, and that this bacillus belongs to this chain of mutations is evident by the fact that it produces antibiotics: the bacitracine.

This production of antibiotics demonstrates us, through a bacterium, that they are close relatives of the Norcadias, and, through them, of the Streptomices, producers of antibiotics by excellence.

The same as Scheurlen and Domingo Freire, we obtained many times cultures of the Schuerlen bacteria when we employed mediums of the same simplicity of the ones they employed.

Experimentally we have tested the mutation of the Streptomyces isolated from blood of cancer patients into Nocardias; and from Nocardias to sporulated bacillus identified with the Schuerlen bacillus. All of them tend to grow on surface in the culture mediums forming veils, which demonstrates that mutations have taken place in order to the use of oxygen.

It would be a curious work - to which we can not dedicate ourselves at the moment - to find out through variation in the composition of the mediums of culture, which are the mutations that, starting from Streptomyces and passing through Nocardias - partially acid resistant - and through the alpha and beta Ferran bacteria - also partially acid resistant - drove the tuberculosis bacillus, totally acid resistant, and which was the way the inverse mutations followed so that the tuberculosis bacillus arrived through mutations to form the virus of the lymphogranuloma of Hodgkings.

That the mutations that are produced in this microbial zone have puzzled the researchers of all times and that they have not found themselves with enough strength to follow the clue is demonstrated by the fact that normally in Microbiology they only study the forms grown in fixed composition mediums: the mediums of Saubouraud if isolation and conservation, because the liability of the forms is known when the composition of the medium is modified.

This liability affects in a high degree the curriculum vitae of the agents related by mutation with the neoplastic agents, and if we had renounced to follow their clue, this problem would not have been solved in a lot of time.

We have headed this work with the title of "Fungus virus of cancer" and this concept experimentally demonstrated needs to be explained, to which we dedicate ourselves in the following lines:

DEMONSTRATION THAT THE CANCER AGENTS ARE FUNGUS-VIRUS

One of the circumstances that without any gender of doubts have given us the evidence of which are the agents producers of neoplasias and which are not, and at the same time have demonstrated us which function as virus and which do not.

The experimental demonstration that only protomyces go on multiplying themselves and grow in the culture medium after having passed the filtering plaque of Seist for virus while the others have not passed and, therefore, have not appeared in the filtrate.

So, we have proceeded to mix cultures of all the forms, mutant or not, isolated. This mixture has been filtrated by the Seist plaque, mixing at the same time small bacteria to prove their retention in the sterilizing plaque. These filtrates have been put in the stove of culture and, after some time - some weeks - the medium has become turbid and, while proceeding to control, we have found exclusively the protomyces.

Taking into account that we have proceeded correctly, that the test has been repeated several times with identical result and that the protomyces do not grow in ordinary medium of Mycology, we think we are able to establish definitively that:

THE PROTOMYCES HAVE THE DOUBLE PERSONALITY OF FUNGUS AND VIRUS.

This demonstration is such a conclusion that it takes these works out of the speculative period and sanctions experimentally all our suppositions and carries, as a consequence that the etiologic problem of the protomyces, has become necessary to be studied as a theme.

However, before we are going to ask a question and we are going to answer it: Which is the part of the complex cycle of the protomyces that goes through the fine pores of the filter? We are going to answer the question with the reproduction of some lines of our communication to the Medicine Academy of Seville presented the 25th of May, 1942 that says so : " the fragmentary pieces of the miceliums of these virus are filterable and able of continue the developing cycle."

The simple vision of the micelian masses demonstrates us that if in some parts the thickness one can guess, more than see, is of three tenth of micra, there are also in the same micelium pieces of less thickness that carry fructiferous points that filtrate and reproduce spores that continue the cycle because the spores are diplont.

In our fifth work we said we gave these agents the name of protomyces because we considered them, because of some of their characteristics, the most similar specie to which we could relate them. But this does not prejudge that one day, when the specialists in the systematic intervene; they have to be considered as such.

NATURE, EVOLUTION AND SEXUALITY OF THE PROTOMYCES PRODUCERS OF CANCER

Westtstein, although he includes them in the endimicetaceos, says that their systematic position is uncertain.

What indeed is clear is their fungus-virus nature because their filterability has been proved by us.

We do not have a microphotograph camera and, therefore, it is impossible to enclose the corresponding photographies for their exact visual knowledge, but we accompany pictures that give us an approximate idea of them.

We describe them basing ourselves in the acquire knowledge about them after many nights without sleep.

The central figure by excellence of any cycle is the anteridium that presents itself free in the culture as an exception and generally fixed to an extreme to a red globule or an ascogonium. In both cases the free part is permanently gifted of an ondulatory movement. In its free extreme it has a somehow spheric thickness. It can have until 50 micras of length and less than one of wideness, while in other cases they are rather short.

They developed in several senses: sometimes they grow thickness that simulates it into a streptococcus, others they inflate and origin directly into one of the forms considered as mutant: the clamidosporaceous, not cotton like fungus. In other times they suffer a

type of vitrification and after they acquire movement, having become Nocardias. Or, in other times they differentiate in levuriform forms.

It is probable that in these cases of direct evolution there is no change of generations, because there has not been sexual coupling and that the resultant forms are haplont.

The ascogoniums are generally spheric, generally of less size than the erythrocytes, but sometimes bigger and they present greenish reflects on their flat surface. In the majority of the cases they are stood on end by the smallest anteridium, whose significance we still do not know.

The anteridium fixes on these ascogoniums stimulates the apparitions of spores. This spore mass, as we saw in the previous description of the different kinds of protomyces, resolves getting lose and giving origin to the most tenuous micelium loaded with more or less thick spores.

With this we have explained, in general terms, what protomyces producers of neoplasias are.

Now we are going to touch another type of considerations. We have been able to observe that the graver the patient is, the less ascas appear, and in some cases we have not been able to get any evolution. But in these cases there is, as always, the anteridium that goes emigrating from red globule to red globule having them run out of hemoglobine oxygen, as it were an orphan wanderer. In these cases, which are scarce, they do not grow nor multiply but they only vegetate.

It is in the less advanced cases where the anteridium, because they meet numerous ascogoniums, produce an enormous quantity of micelian formations.

Here there is a secret that will not take long to take out, but that carries, as a consequence, the demonstration that inside the complex of the protomyces, the anteridium, as a porter of a gene elemental formation is the one that springs in the cell gifted of an orphan gene as it was explained in the previous work.

CANCER AGENTS - THE ABERRANT SIMBIONTIC PROTOMYCES

October, 20th, 1959

At the end of the seventh work we said that we would try to find out why in the blood of the seriously ill patients there were fewer anteridium in general, and fewer ascogoniums in the blood of the recent patients.

In order to get to solve this puzzle we counted on a decisive weapon and it was that practically we had obtained what in the third work was enunciated as the following way: "in an artificial medium of culture that basically owns a composition similar to the dead cell, but where we add energetic systems and the raw matters that used by the virus to begin the fermentative series, we will be able to cultivate them as they were live cells."

The first step to start the suitable testing was to test in this medium of culture, if we could obtain positive cultures of the virus of the pig pest and obtaining it took us to the demonstration that this classic virus is also a protomyces, getting with this the proof that they can not be considered as fungus but a special must be done with them.

The second step was to put our blood in the same medium, which gave us the surprise of being able to see, when 24 hours had passed, the apparition of anteridium and ascogoniums of protomyces.

The next day we could take blood from our assistant and from to young mates that paid us a visit and, the same way, in a 24 hour period of time the anteridium and ascogoniums appeared.

A new world introduced itself to us and to put it in front of your eyes is our most immediate task and that we can summarize like this:

Inside our organism there is a symbiotic association. This interior has to be subdivided in two totally different zones: extra parental routes and the parental world limited by all the cavity zones and separated from them by mucus.

In the extra-parental cavity zones there are symbiotic associations known by all, like the ones of the cholibacillus in the intestinal track and the ones of the lactobacillus or Doderlein bacillus in the vaginal section.

In the intra-parental world there are also agents, so ours, that are born with us, going through our mother placenta, and die with us.

They are so ours and we are so theirs that we owe each other life.

Of this intimate life together, along millions of years, a perfect specialization has been born, through which they supply us with enzymes, that the own cells do not elaborate and influence greatly in the latter autolysis of the dead body.

It comes out immediately that in order to exist inward our tissues and in our blood they need lack totally antigenic power and so it is, indeed.

Their ascas are real sacks of enzymes that drop their contents in our economy in order to help it in synthesis and degradation tasks.

They are real protomyces in which none of their apoenzymetic proteins are heterologe regarding anti genicity.

We have, so, a scheme of two symbiotic worlds. In the extra-parental world, bacteria and in the intra-parental world, non antigenic virus or, in one word, protomyces.

Some of them help us to demolish the albumins, albumoses, peptones, etc. up to amino-acids etc. and to synthetize vitamins like K, sinthezized by the colibacillus.

The others help us through their own enzymes in multiple tasks.

So well, the colibacillus can get ill or mutate, by being attacked partially by a phago, appearing after a pathogenic lineage that gives as colitis and other afections.

The symbiotic protomyces can get ill too, carrying with them a general or local metabolic upsetting.

Let's examine how this mechanism of action takes place, but before we are going to do a classification of the virus and protomyces regarding the last concepts reached.

Group 1.

Protomyces without antigenicity or symbiotic

Group 2.

Protomyces with anti genicity, not tolerated by the organism, against which it defends itself, being able to defeat them to the creation of a refractory state of immunity

Group 3.

Symbiotic protomyces altered by the introduction of hetero enzymes, but not antigenic, that do not cause immune reactions. We saw along the first works how the virus or protomyces could be formed by aggregations of enzymes.

We also so how, by example, a glosopeda virus, acting as phago, could capture new enzymes, which gave place to the apparition of new variants.

So well: a symbiotic protomyce can also capture-which is little probable- at summing up an enzyme or a group of enzymes- which is more probable- alter its constitution.

So, if this enzyme or aggregated group of enzymes is antigenic, the defences of the organism eliminate it after having obtained against it an immune state, getting back to normality.

If the aggregated enzymes are not antigenic, the organism lacks procedures in order to separate them from the symbiotic protomyces and a new lineage appears in our tissues.

On the other hand, the aggregated enzymes can not modify the symbiotic protomyces and then, a deficiency in normal metabolism appears, but if the aggregation of the strange enzymes carries out a spatial modification in the structure of the enzymatic equipment of the symbiotic protomyces, this, automatically remains void for using the energetic systems of the adenilic ribosic acid and they have to look inside the nucleus of the cells in order to capture energy of the adenilic deoxi ribosic acid.

When it arrives to the inside of a cellular nucleus, either because of the circumstances noted in the 6th work or because of imperious necessities of substrate, through the mechanisms mentioned in other works, it sets in a mitosis and creates an anarchic world that is its own world.

While, the other circling symbiotic protomyces are completely normal.

As we said in previous works, once a bridge head is created by the aberrant protomyces in the tumoural zone, it sets in its antitriptic ferments and so it supplies adenilic desoxiribo acid to the general circulation of the organism, which invades after, and this invasion has as a consequence, the interference of the actuation of the normal protomyces, which brings up the cachexia because of deficiencies of the normal metabolism.

Now we can explain with more exactitude where the impossibility for quackers to succeed in their chemotherapeutical compositions lies; when it is about springs that are not at reach of their scarotic patches and the failures of all internal chemotherapy medication.

The aberrant protomyces, producers of cancer, can not be attacked because they are symbiotic protomyces, whose only difference with the normal ones lies in that they have some strange and not antigenic enzymes added.

The could test their chemotherapeutical medicaments against the protomyces of the pig pest etc. and when they succeed, then they should try with some hope against neoplastic processes in which their protomyces are more difficult to attack, first because their holder is symbiotic, while the one of the virus is own and, second, because at lacking antigenicity, you cannot count on the organic defences.

Here a huge field of assays opens to them in order to explore possibilities, because if something that is so selective as to act on strange protomyces and not on symbiotic, it is possible that it is also able to separate the added fraction in protomyces and turn them back to normality.

Arriving here we make ourselves the disturbing question: Which hopes rest to humanity regarding the overwhelming problem of cancer?

We are going to try to make a revision of the possible ways to follow and that can represent a hope.

In the first place, we are going to make ourselves the following question: Where do the heterolog enzymes that by aggregating themselves to a symbiotic protomyces make it a cancer protomyces come from? If this aggregation is impeded, we will have avoided the transformation of the symbiotic protomyces into cancer protomyces.

The question is easy to answer: the enzymes come from non antigenic agents.

From our micro-biologic knowledge we can conclude that these agents are located perfectly from the Actinocyetales order to the field of the classic fungus.

Now we can understand the constitution of the virus of the lymphogranuloma of Hodgkins. It has been formed when a group of enzymes of the tuberculosis bacillus is added to a symbiotic protomyces.

The specific pathologic qualities of the rest of the virus or aberrant protomyces producers of neoplasias depend on the nature and condition of the aggregated enzymes.

It comes out now that - and with this we demonstrate our little taste for fixed ideas - that the mycos agents that in the 5th work we included in the second group of the three in which we divided the virus , are only mycos agents that grant their enzymes to the symbiotic protomyces.

Arrived to this point, there is a hope left and we have more than enough motives to believe in it.

Let us isolate all the micosical forms still present in some cancer patients in adequate culture mediums, and, let us make nocardias, streptomyces, clamidosporaceous, etc.. with them, a polyvalent vaccine, obtained by lysate for the liberation of endoenzymes, filtrated by sterile plaque in order to eliminate the rest of the stroma that can provoke hyper sensibility reactions and we will have built a vaccines against the possible enzymes that have been able to aggregate to the symbiotic protomyces. If they are a little antigenic and we use the vaccine before the aberrant protomyces have invaded the economy, spectacular success will be obtained, as we have, through consequent collaborators.

If the aggregated fraction is by no means antigenic, and at trying its treatment we meet hyper sensibility reactions, it only rests us to cross the arms.

This explains our success and our failures.

We finish this work pleading for cooperation in order to face the rest of the road there is to be walked that, according to omens, is depleting.

IV. - ELEMENTAL LIFE OF THE GENES - VIRUS - GENES AND PHAGES.

January, 5th, 1960.

PRO-VIRUS OR PRO-GENES

We are going to dedicate this ninth part to make a revision of the route that we have followed in our investigations about filtrated virus, and of the associated circumstances, that as a consequence have come to discussion.

It is true that all these facts have been touched in previous works, but we would like to clear them of weeds and present them as a body of doctrine and as a route to conclusions, because we consider them issues of great interest. With this kind of summary we will realize more exactly the mystery that is joint to the elemental life of virus.

We would also like to define our position so that everybody has an exact idea of the goal that we are looking for.

Since we started working on the filtering virus- at our style-we understood that the genesis of cancer was associated, in a certain way, to the solution of the problem of the knowledge of the nature of the filtering virus and that, at least, if it was not produced directly by any of them, with their knowledge we would have been able to get close to the solution of the problem.

In consequence, we organized a vast operation, facilitating all the doctors that were willing to, totally innocuous vaccines, but with different enzymatic compositions in each lot, in order to obtain a wide statistic, that demonstrated us what type of enzymes intervene in the production of neoplasias, an in the last extreme, what type of virus.

And we chose this procedure and organized this operation about three years and a half ago, because we arrived to the conclusion that the direct research was the only one effective in human specie; because the investigations organized around experimentation on animals have always driven to results that after have not been able to be proofed in the human specie.

The fructiferous results obtained, marked exactly by the compass of statistics, will be the base of our 11th work.

In all the cases treated we have faced the responsibility of any risk, and, to carry out a wide statistic, we have exhausted our resources. It was our obligation as an investigator.

Precisely we said that we would dedicate this work to give the necessary technique for the culture and visualization of the classic virus, but there are circumstances that advise us to delay it.

These circumstances are the lack of spirit of constructive polemic and the passiveness that surrounds us. We wish they came across us, because this would be a reason for specifying details and clarifying others, and, above all, because we wish that the obtained facts were put under testing by who can and have the duty of doing it.

We think that with these lines the aim of our intervention in the treatment of the neoplastic processes is clarified and the goals achieved fully justify our sacrifices.

Another circumstance that has maintained our moral high has been the thanks that we have clearly received in all the cases, for our indirect intervention through the doctor.

Finished this introduction, we get fully into the issue of this work that is divided according to the following form.

A) Creation of elements gifted with life starting from inert molecules.

B) Genes and DNA

C) Energetic systems

D) Classic Virus

E) Cancer elements

A) Creation of elements gifted with life starting from inert molecules.

In June 1952 we published a work by the magazines Medicamenta, edition of Pharmacy. The work was titled: "On the origin, formation and nature of filtering virus."

In such work we said that the virus were formed according to the following: "Let us put as an example a virus that is compound of six molecules; these mole, the following way : two determined mould bacteria and not any other, because each virus is originated by a defined combination of molecules different from other mould bacteria, meet accidentally and make each other sensitive, originating their lytic disintegration and some of the molecules forecasted by both join in order to form a molecule.

This molecule remains in this state without any activity, but if it accidentally meets with any of the other mould of bacteria left of its group, they get close to it by affinity and at feeling the contact of the di-molecule, the bacterium des -integrates, spreading numerous uni-molecules. But as the des-integration has been preceded by an active multiplication of the di-molecule that only multiplies at being made sensitive by one of the mould bacteria of their viric group, at the moment of

Being forecasted, the uni-molecules by the bacteria, they meet numerous di-molecules that have acted as bacteria-Phages. The latter join to form a tri-molecule and so on until a limit that can be the following:

If the six molecules are not completed - the minimum quantity for forming the viric poli-molecule - the tetra or penta-molecules remain indefinitely as an inactive aggregation, and this may occur because in the place where these aggregations are taking place there are not one or two mould bacteria.

But if the six molecules become complete, then the virus shows up, with its peculiar characteristics, without prejudging with this that the virus has to be necessarily pathogenic, because the same way a saprophyte virus can have been generated.

We also said that they could be created in assay tube the following way:

Once we know the four mould bacteria, and obtained the artificial cultures from them, two of these cultures are put in contact, in which, through a sensitization phenomenon of one another, a double disintegration would take place and a di-molecule would form. This di-molecule would be inoculated to the culture of the mould bacteria number three, which would suffer through sensitization the lytic process of disintegration forming a tri-molecule. And last this tri-molecule, added to the culture of the mould bacteria number 4, would sensitize it, producing its lysis and forming a tetra-molecule. But as the tetra-molecule is the complete virus, in the tube we would have obtained, starting from not living cells, an active virus with all the specific vital characteristics.

These paragraphs, apart from the considerations we did around this conception, about formation of vital structures, starting from inert cells, the guide at that date of these ideas, that because they have been considered excessively utopian.

But the problem is more complex than what we said and we are going to put it in the way so that it is obtained, since we cannot face its consecution, because it is not possible to make it through private investigation, because of the lack of means and time.

Throughout the 8 works published before, we have seen that the disintegration molecules to which we refer ourselves in that work, were apoenzymatic proteins and full enzymes, but in order to join themselves they needed an induction of immune type or of another type and that the final chemical composition of such aggregations or virus was of a ribo or desoxiribo protein.

We said also that life started stammering in the enzymes, having activity although not multiplying. Through the enzymes the Phages and virus showed up under the form of conditioned life and, in a more autonomous form, in the bacterial germs of exit.

It is left to determine, in the last analysis, where do the elemental components of such enzymatic proteins and the RNA and DNA that complete its structure come from.

Regarding the origin of the apoenzymatic proteins, set in the gene and in the virus, we know they come from the condensation of amino acids and that each bacteria builds its starting from a specific order of the molecular chains of their proteins. This allows the existence of multiple enzymes by coupling, besides this, with different enzymes.

Bacteria build theirs, either starting from polypeptides present in the culture stocks or starting directly from amino acids through culture in total hydrolyzed of proteins. There are, so, in bacteria condensed enzymes of amino acids that are put in order in a peculiar way by them for building their holding proteins, reserve proteins and enzymatic proteins.

B) Genes and DNA.

The same way condense the nucleotids in order to form long chains and thick DNA molecules that, in union with the apoenzymatic protein, will originate the gene. These nucleotids are also ordered in a specific way in each gene and in each virus, which gives inherited specificity to the genes of the germinative cells of the specie and antigenic specificity to all the species and variants of the virus.

We have, then, two systems: one of demolition or catabolic, with chemical simplification of the starting matter that usually is done with energy giving off (this is why they are exergonic) and, another one of construction, or anabolic, with increase of the chemical complexity of the starting matter that normally is produced with energy capture (this is they are endergonic).

The goal of our digestive system is to destroy the proteins and the DNA and RNA acids ingested with the food, and so with the carbohydrates, through enzymatic hydrolysis, to after, starting from the amino-acids, pentoses, purines and pirimines and amino-acids and simple sugars, the organism rebuilds its own proteins, polisacarides and nucleic acids.

It is as if we would like to do a new building with the matter of the other. We have to start by demolishing the old brick, brick by brick, and put them again at a different disposition in order that the new house we pretend to build comes out fine.

We know that the hydrolysis of the complex matter in order to make them simple can be done through acid hydrolysis or basic hydrolysis, with heat or by action of specific enzymes for each type of degradation, at 37°C, which is corporal temperature, too.

We all knew that the condensation of these simple matters for building others that are more complex had to be made by the action of specific enzymes; and, regarding the nucleotids condensation for building RNA and DNA, has received the experimental demonstration that, indeed, was as it was explained by Doctors Ochoa and Koruberb.

But it is very possible that in order this condensation of nucleotids takes place - that are easy to obtain from the thymus maceration with great quantities of water, separating the protean component through salting and latter precipitation of the nucleic acids through ethyl alcohol in the form of a fibrose mass and latter intervention of nuclease, that frees the nucleotids we need the intervention of the enzyme.

C) Energetic systems.

We have not read anything about the intervention of such energetic systems in the condensing process in the press, the only reference we have had of these works. But it is logic to think that like in live beings the endergonic condensing reactions have available energetic matter because they have liberated themselves, in the opposite processes, of demolition of exergonic, in the assay tube they do not exist free, but they add on purpose, unless they exist without their presence having been suspected or their presence is known without referring to it in the press.

Indeed, we all know that the carriers of energy are the tri, diphosphate of adenosine and the adenilic acid. We have suspected the existence of other energetic nucleotor systems that would be the tri, di phosphate of deoxi-riboxic adenosine, probably intervening the latter, giving energy so as to make possible the condensation of DNA.

That these energetic systems existed in the assay tube of these doctors is easy to demonstrate, because at proceeding to the demolition of both nucleinic acids, in order to try their condensation after, the nucleotids have remained free and, among them, the known energetic adenilic acid system, that is one of the freed nucleotids by the action of the nucleasa on the RNA and denounced by us in previous works: adenilic desoxiribo acid, nucleotid that is a consequence of the demolishing action of the nucleasas on de DNA.

And furthermore, this is so, when the adenilic acids can add more than a phosphate radical, becoming di and triphosphate of adenosine of high energetic level.

The existence of the deoxi-ribo adenilic acid as a nuclear energetic system derivates from the same logic because at passing the ribosic nucleotids through the nuclear membrane they become de-oxi-ribosic. It is natural and logic to think that the ribosic adenilic has become de-oxi-ribosic at penetrating the nucleus and, therefore, the existence of ribosic nucleotids is not possible inside the nucleus. As it logic to think that the nuclear energy is hold by energetic systems, we get into a vicious circle that takes us to demonstrate its presence.

When we arrive to this point we have to conclude that life in the genes and in the virus is based or is born from the union of three fundamental factors.

- 1.- Proteins of enzymatic nature that form part of the gene and that function as precursors of the enzymes and whose partial alteration is hereditary transmitted as the cases of captonuria, fenilpiruvic idiotism and albinism mentioned in previous works.
- 2.- De-oxi-ribonucleic acids or DNA as fundamental components of the gene structure.
- 3.- Energetic systems of ribo or desoxiribo type, that we have already explained, could form part of the gene or viric structures.

We have, then, the three elements that are to build elemental life from simple substances not containing it.

If we start wishing to build enzymatic proteins globules, we will fail, because the order of the amino-acids in these is the most complex and specific, but we can use an aggregation of enzymes with vitality signs, the Phages (gifted with an incomplete gene structure), because they go on ordering the position of the enzymes that they lack and the DNA in order to complete the equipment in a systematic way; thing that is impossible of getting if there is no phagic or proviric mass that is initially ordering.

If we do not start from the ordering initial structure, the union of the nucleotids through simple condensing enzymes is necessarily anarchic and does not gives place to the coming up of molecules gifted with life. For the latter these chains of DNA acid have to be constituted by nucleotids and apo-enzymatic proteins joint to them in a specific ordered way, because such apoenzymes are going to direct, as precursor of enzymes, all the somatic biochemistry of the virus, bacteria, cell and organism.

Could it be possible to obtain life, in other words an elemental being able to multiply itself per se, through the disordered union of nucleotids? We suspect not. And we believe that, as we have indicated, there is the need of the presence of an initial ordering element, although this is as simple as the one formed by the union of two enzymes with their corresponding elemental structure of DNA that already presents, as phago or provirus, signs of vitality.

From all this we can deduce that if only one enzyme is used as condensing agent of nucleotids , it lacks, because of its simplicity, the ordering capacity, obtaining only an anarchic of nucleotids , as a false copy of the vital structure, lacking the all the basic characteristics of the live element, its multiplicative

B) Exhaustion.

Many chemical degradation operations that are made in the laboratory and even the ones of condensation or synthesis are made through procedures that are purely chemical, heating strongly the raw matter so as to make them react among them.

These and many other functions that are more complicated are made constantly by the live organisms at 37 °C of temperature, and this is only possible because of the action of hormones and enzymes that, at the end, are the same thing.

The individual is born with a strong load of them, but in the shape of precursors because if not the energy that is consumed along all the life would be spent at the speed of a fire.

During the process of growing we need a great quantity of energy to dedicate it to the synthesis of growing matter and the acids DNA and RNA are consumed. These, at hydrolysing and becoming nucleotids, give a great quantity of building energy.

During life, many enzymes are elaborated by glands and diverse organs, but many of them are supplied by the apo-enzymatic proteins of the gene, that, this way, little by little, runs out of its load.

The noble tissues slowly change to conjunctive tissue to glandular zones and to tired cells or exhausted cells.

The utilization of the matter supplied by the food is every day less in all aspects and in the caloric use. The old man goes out to the sun, gets close to the fire, needs exterior energy, heat that is irradiated by foreign fountain, because the own one is running out.

The lighter has already little stone, two or three strokes more and the light will not come up. Life is ended.

There are, then, genes that get old, that run out of precursor proteins, but before running out completely, they suffer deficiencies, consequence of the process.

In these circumstances it can be that a gene has the temptation of associating enzymes in order to get young again. The neoplasia of the old persons has young cells of great multiplicative energy, almost more than the one of a tender infant. The old cell, the old gene, wanting to escape from death by consumption gets young, auto-injecting itself new enzymes.

It is a rebel that does not agree with its destiny and throws itself into a orgy that ends destroying them and the rest that were quietly waiting for the run out.

C) ITS SPECIAL DEFICIENCY OR SPECIAL INHERITED STRUCTURE.

We have also seen that we are born with inherited deficiencies of enzymatic type, as in the case of the alcaptonuria, fenilpiruvivo idiotism or albinism - so many times quoted - and such deficiencies depend on the absence of an enzymatic precursor in a gene.

There also can exist deficiencies or different modalities in the use of many substances or even in the action of many medicaments that constitute the individuals essence.

We are going to analyse only one case: We know alcoholic individuals that do not have dinner at night and do not eat almost anything during the day, being, despite this, fat and keep well the heat of the specie. What ways make this individual follow alcohol so that only with it he keeps all the energetic mechanism, dynamic and synthetic?

The truth is that he uses what normally is a strong toxic for the majority of the people drunk in such quantities.

And it is also truth that the sons of the alcoholic can repeat their parent's behaviour.

If the transformation that the alcoholic does to alcohol for using it form multiple tasks, are done due to the action of regulated enzymes in their precursors than in a normal person.

There are inherited lines with special circumstances in their precursors and there can be inherited lines that have more tendencies of their genes to add strange agents.

4.- CANCER CAN BE CONTAGIOUS.

After having achieved the last conclusions we can affirm that not. Malign tumours of persons are very different from the transmissible tumours of animals, because in the latter it is more than probable the existence of a virus as a causal agent.

This circumstance is due to the fact of the failure of trying to apply conclusions taken out of animal tumours to human neoplasias.

The reducing forms of some bacteria and fungus that this way transit in our organism, are completely harmless, and therefore the cancer patient can also give us the bacteria that has given enzymes to a gene of his, determining the apparition of tumour. But the guilty one was his gene that stole the bacteria enzymes and not the own bacteria that, at end was stolen.

He can give us a saprofitic bacterium only, that, besides, we can take at the same degree of saprofitism at any place and in any moment.

If in our organism there is perfect gene stability, no gene will tend to add enzymes of such bacteria and there will not be any alteration.

But, besides, as these bacteria get into our parental space and go out, it happens that the majority of the times, after having taken place the addition of enzymes of determinate bacteria, this disappears from the circulation not remaining signs of the donator agent.

Although we smash a cancer and inject the cancerous cells to normal persons, it will not be contagious, unless one of the cancerous cells becomes grafted and has descendents.

But even in this case, there has to be predisposition, because if there is not, the new inoculated organism will separate from the gene of such cell the strange enzyme through the same method that we wish to employ in the cancerous immune-therapy.

5.- STATEMENT FOR THE ANTICANCER FIGHT AS A RESULT OF THESE CONCLUSIONS.

Here we have to confirm our point of view, expressed so many times. There is only one possible procedure, the one that consists in taken off or destroy such enzymes without harming the rest of the gene structure; and we do not have another procedure than the selective action of the enzymatic immune -therapy.

Clinical statistics has confirmed us that this is possible when the added enzymes have a light antigenic power, which does not occur in all the cases.

We will dedicate the next work to the study of the donor bacteria of such enzymes and to the technique of elaboration of the anti-enzymatic vaccine.

When we put the final point down to the next work, our mission as researchers in cancer will have ended, and we humbly ask to be forgiven for having dared occupy ourselves of these problems.

V. - THE VIRAL STRUCTURES

March 5th 1960

THE BACTERIOPHAGE - BRIEF HISTORICAL SUMMARY OF BACTERIOPHAGIA

Before entering in the explanations that clear the mystery that has surrounded the problem of bacteriophagia and that show until what point are true the affirmations and the results of our investigations about virus, we are going, so as to remember the facts, to make a brief historical summary of the points of view defended and the discussions held to obtain an interpretation.

In the year, 1896 Hankin had already proved that the water of certain rivers in India had an antiseptic action on the choleric vibron.

Similar observations were made by Emmerich and Lowe.

In 1915, Twort observed that, sowing vaccinal lymph in inclined gelose, colonies of staphylococcus appeared, proving that among them there were vitreous zones and transparent zones.

These phenomena were not explained satisfactorily.

In the session of 10 September of the year 1917 celebrated in the Academy of Sciences in Paris, the French investigator Felix Hubert D'Herelle presented his communication "Sur un microbe invisible, antagoniste des bacilles dysentériques", that in a brief time drove him to the maximum scientific popularity.

The points of view of D'Herelle were the following:

"Bacteriophagia is essentially constituted by a phenomenon of bacteria-lysis in series, in other words, that addition to a bacterial suspension of a vestige of a liquid that contains the bacteria-phage principium provokes in some hours total, dissolution, without residua, of all the existing bacteria in the suspension. A vestige of the limp liquid obtained provokes the same phenomenon of dissolution in the second bacterial suspension and so successively, reproducing the same phenomenon indefinitely, without being its action weakened.

If on drop of bacterial suspension is put in gelose to which one has just added a vestige (some millionth of ml) of a liquid that contains the "bacteria-phage principium", it is obtained, after incubations, a culture in cape of the bacteria, spread in isolated islands, of "beaches" in which gelose is alone, without apparent culture.

The presence of such beaches makes possible to demonstrate that the bacteria-phage principium exists in the form of corpuscles.

Each colony represents and experience demonstrates it, a colony of bacteria-phage corpuscles, which allows to enumerate the corpuscles present in the liquid and

therefore to follow the development of the corpuscles in the course of the bacterial lysis.

As soon as the dissolution of the bacteria has finished, the bacterial suspension has become a suspension of bacteria-phage corpuscles.

D'Herelle came to the conclusion that these corpuscles are living beings, because they have a set of qualities, by definition, belonging to the property of live beings.

That they have an own individuality, independent from the bacteria that suffers the lyses and that these autonomous corpuscles multiply in a heterogeneous medium and have assimilation power, being, besides, able to adapt to adverse conditions of the medium.

As individuality, the power of assimilation, the accommodation susceptibility and variability, joint to the possibility of reproduction, constitute precisely a set of properties considered as life criteria, the corpuscle that joins them is, in consequence, a live being.

Concluding that the phenomenon of bacterial-phagia cannot be provoked but by a live being, an ultra-microbe parasite of bacteria and to this live autonomous entity he gave the name of intestinal bacterial-phage.

The particularities of the phenomenon of bacterial-phagia were confirmed by numerous authors, but as to the nature and origin of the bacterial-phage corpuscles, there was a strong discussion.

For T. Kabeshima there would exist in the animal intestine a catalytic of chemical nature, coming, without any doubt, from leucocytes, that would provoke the dissolution of bacteria, activating a prodiastase normally locked in these bacteria.

For Anna Kuttner (2) an enzyme contained in the cell of the thin intestine and in the liver would intervene.

For Borchardt (3), the enzyme that intervenes is tripsine.

These three opinions held the criteria that bacterial-phagia could be provoked by the presence of an alien chemical principle, not coming from the bacteria that suffers the lyses.

To this answered D'Herelle saying it can not be admitted that a chemical principle denominated catalytic or enzyme, coming from the organism of an animal, can reproduce itself from bacteria, which would imply being able to transform the substance bacteria into catalytic substance.

Either you admit this transformation or one has to admit that this catalytic exists already formed in the bacteria.

If none of the two alternatives is admitted, one falls in an Absurd, because by not being able of reproducing such chemical principle, it will quickly be eliminated during the following steps, stopping by dissolution if the phenomenon takes place.

Doerr (4) assimilates the bacteriophage principle to a toxin that performs its action on bacterial metabolism and this toxin will be regenerated by the ill bacteria; but he says that the hypothesis of the auto lysine is not possible and admits that what is called toxin is a principle alien to the bacterium. In other words, that it is admitted that the action would continue in series, because in each phase a transformation of the substance bacteria into lysogen is produced.

D'Herelle opposed to this and said that such transformation has a special name in biology: assimilation. That it is the characteristic of life. The toxin of Doerr would be, as a consequence of the definition of life, a living being.

Borde and Ciuca (5) proved that if we injected in the peritoneum of a guinea pig several times a sub-lethal dose of a coli-bacillus dose coli-bacillus culture, and few hours after the last injection they took a peritoneal exudates and they added a drop of a young culture of coli-bacilli in bouillon, the lyses was produced.

And they proved, besides that, that this guinea pig did not have this lytic property in the filtrate of its excrements.

In consequence, they came to the hypothesis of an inherited nutritive vitiation.

This opinion was fought by D'Herelle with the following argumentation: he filtrated an emulsion lysated by a bacteria proof china candle, and a vestige of this obtained filtrated lysates a fresh bacteria emulsion.

By filtrating in each step through china candle, I am sure of not introducing, with the vestige of the lysate any bacteria that comes from the preceding lysate emulsion, in the suspension in which this vestige of filtrate is going to provoke the lyses.

How can, in this process, be done the transmission of an acquired character, since I do not transport any bacterium of the suspension that has just been lysated, the one that has just suffered the lyses.

Or is it that Bordet and Ciuca wanted to make us admit an hereditary character excreted in a soluble state and this excreted character can go through the china filters, be kept in a liquid, exalt itself, attenuate and communicate with a healthy bacteria by the simple contact with this liquid?

This was D'Herelle's argumentation, but it is true that Bordet and Ciuca had put the finger in the wound, and despite the argumentations against, it could be seen in between that the lytic principle could come from the same bacteria.

We do not wish to go into the discussion until the end, in order to finish with it once forever and this why we go on with the history of these polemics.

Bordet and Ciuca said that the primum movens of the transmissible lyses is in leucocytes, but D'Herelle said that if the primum movens were in leucocytes, it would be enough to take them from animals experimentally immunized and to introduce them in a bacterial culture in order to provoke the phenomenon, fact that does not occur.

Lisbonne and Carrere (6) formulated the theory of nutritive vitiation and said that this would take place under the influence of a bacterial antagonism.

Seiffert through in an exogenic autolysis

To this came D'Herelle saying that in the infinite series of bacterial series in which the process is renovated, each emulsion does not have but normal fresh bacteria as a consequence of the filtration done in each phase: not any ill bacteria of the preceding suspension penetrates in the following suspension and, therefore, it is precise that the cause of the vitiation of the bacterial metabolism goes through the filters and is indefinitely present.

So- he continues - one or the other: or this cause is inert or this cause is live.

If we suppose it inert, the action in series is impossible to explain, because an autonomous substance (call it enzyme, soluble ferment, catalyst, toxin or another) will fatally disappear because of the successive dissolutions.

If we admit this alien autonomous substance is regenerated at the expense of the bacterial substance, we gift this substance of the attribute of life and it can not be an inert substance, it is a live being; it is the bacteria-phage.

As we have seen, the points of view of Bordet, Ciuca, Lisbonne, Carrere and Seiffret start from the belief that vitiation is produced by the apparition of a lytic principle that does not normally exist in bacteria.

However, there were still points of view that considerate that the phenomenon of bacteria-phage is produced under the action of a principle locked inside the bacteria, in other words, always present in the normal bacteria.

It would not be, following these points of view, a morbid process unchained under the action of an alien cause but a normal process.

O. Bail (7) says that all bacteria would present two forms: the vegetative form that we observe in the microscope and a filtering, the splitter.

This filtering form, introduced in a culture or in a suspension that has no more than the normal form, would provoke the transformation of the splitter form, being accompanied by the phenomenon of the dissolution of the bacterial bodies: the splitter, on its side, could transform itself in normal vegetative form.

W.Davinson, Pico, Krauss, Weinberg, Aznar, Da Cost and Ledingham believe in the existence of normal auto-lysis and the action would be as follows in the lines under.

If we introduce an auto lysine in a bacterial suspension, the bacteria dissolves themselves and set free in the medium the lysine they have, from where the continuity of the action in series results.

Otto and Winlher introduce a variant and it is that the lysogen substance, normally locked in the bacteria, would not be an enzyme, but a pro-enzyme, that would transform itself in active enzyme under the influence of heat or filtration.

D´Herelle said to this that the conception of the autolytic process is not absurd because we know, indeed, that all cell contains in itself enzymes susceptible of dissolving the cellular body, but, in the normal conditions of existence, a total autolysis is rarely obtained and, besides, the autolysis of a young bacteria is not ever observed. The partners of the autolytic theories should take into account that the bacteria-phage phenomenon is produced in young bacteria that haven´t any tendency to natural autolysis, as long as it is not produced in the old ones, which autolyse themselves naturally.

So, D´Herelle concluded:

1. - That the bacteria-phage is not an autolysine.
2. - That the bacteria-phage principle is not contained in the normal bacteria.
3. - That the bacteria-phage is an ultra-microbe parasite of the bacteria.

Before starting explaining our own point of view, we are going to finish this brief historical summary with some words of D´Herelle: " In a last analysis, all the current human science tends to the resolution of two great problems: the nature of matter and the nature of life."

We ignore what life is, but we know that life is a physical property of a colloid micela of special constitution. In order to study this constitution, this proceeding, we must necessarily address ourselves to the smallest possible particle of autonomous live matter, where life presents itself under the most elemental form, where it is least the complexity of the phenomenon.

This infinitely small living that is necessary to study in order to determine the nature of life has to be an ultra-microbe, and specially, the one that is easiest to observe, the bacteria-phage.

Thanks to the attacks addressed to his conception of bacteria-phagia, Félix Hubert D´Herelle could round a series of concepts that, within certain reserves, have resisted the most audacious critics and the best found too.

His arguments, solidly built, took out a doctrine and his conclusions are exact, but in one point.

He affirmed that the bacteriaphagic principle is not contained in normal matter and we are going to demonstrate that it is.

But this concept has only been reached basing ourselves in the statements defined in all previous works and was then, and still today, (from what we can see) far from being or wanted to be understood.

There was a need of reaching new horizons, like the ones reached by us, in order to be able to explain the intimate mechanism of the phenomenon of bacteria-phagia, and this is why we pay homage of admiration to D'Herelle since he arrived to the maximum goal susceptible of being reached in his epoch.

Our explanation, that represents the final verdict of this long lawsuit, is going to be brief; and, the ones that have read the previous works will understand without great difficulty the bacteria-phage process.

In order to abound in more argumentations it would be necessary that they would throw at us the same attacks that were thrown against D'Herelle, because these attacks represent a stimulus, a spur for refining more and for us it would be an honor that our points of view would be discussed. Man passes, Mankind stays and, at the end, the point is not to win a personal lawsuit but to have contributed to progress and to happiness of our equals.

OUR POINT OF VIEW

We have seen in the previous works the mechanism of formation of exit bacteria.

We can define them as diploid beings, result of the sexual union of the antheridium's and the ascogonia that are the sexual forms of the virus that give birth to diplont spores.

When the pro-enzymatic equipment or precursor of enzymes of such virus is complex enough for obtaining by synthetic via to be surrounded by protoplasm

If the exit bacteria are formed by getting surrounded by

a protoplasm, the viric, diplont spores can also been conceived as virus , surrounded by protoplasm.

However, the concept no longer sounds well, since the virus surrounded by protoplasm is gene surrounded by protoplasm, a cell, in other words.

Therefore, it is necessary to say that they are bacterial germs that have two genes: one of the coming from the antheridia and one whose precedence is the ascogonia.

It is logic to suppose that the rest of the bacteria can also be thought the same way, this is: unicellular beings that carry two genes - or more - that divide themselves in half's in an asexual process of multiplication.

If the illness takes place in an acute form this individual dies without having had any recuperation in his illness, the typhic bacteria-phage do no appear in his excrements.

If the individual recovers from the illness, in the moment that the recuperation starts the typhic phage appear in his excrements.

The case is the same that Bordet and Ciuca obtained with the coli, although they did not interpret it, because by acquiring the guinea pig immunity, the colis generated their own phage.

In our first works, when we talked about the virus formation by enzymatic aggregations, we said that these enzymes did not associate spontaneously, but there was a need of induction, and that this induction was, essentially, of immune nature.

Now we can understand the referred mechanism better. The animal organism, after the attack of a bacteria, creates bacteria-lysines that lysate the bacteria.

However, the genes of such bacteria resist the lytic action, that is not borne by the protoplasm and, consequently we are at the presence of autonomous genes.

We have already said in the previous work that the autonomous genes are virus and, therefore, we find that in the breast of the lisated bacteria a virus has come up.

But this virus, as such, cannot live but in the breast of the live cell and it chooses fundamentally the bacteria from which it comes from, although it can also live in similar bacteria.

Once the lytic principle has been generated by a mechanism that Bordet and Ciuca did not get to understand, we have to give the reason to D'Herelle, but not as what reeferes to its initial genesis.

We already have virus gene, a bacteria-phage of "corpuscular" nature, indefinitely transmitted in series.

By liberating itself the masculine gene, it gives origin to the antheridium's, and by liberating itself, the feminine gene gives origin to the ascogonium's, that is fecundated inside the bacteria, growing the ascogonium's at fructification the diploid spores until the bacteria blows up.

They are the corpuscles or vacuoles that are seen inside the bacteria during the development of the lytic process.

When the bacteria blow up, the diploid spores stay in the lysate those results, this way, indefinitely transmissible.

If any bacterium resists without destroying itself totally, it gives birth to a resistant, but parasited lineage, and consequently, the culture of these bacteria has lysogenic properties on the culture of normal bacteria, since they carry the lytic principle.

As phages, virus or autonomous genes have to live necessarily inside the live bacteria, because of the same reason of classic virus and cellular genes.

This is why they do not attack dead bacteria nor even the old cultures of bacteria, which, by having run out of the medium, have almost totally stopped their metabolic activity and have begun their natural lyses.

This conclusions demonstrate until where are true our points of view that consider virus autonomous genes and genes, associated genes.

There is only one unique difference and it is that virus is autonomous and genes lack that autonomy.

But when genes stays isolated because the protoplasm that surrounds it becomes lysate, it acquires independence and sets in as an autonomous being: a virus.

It would be the inverse phenomenon of the apparition of the exit germs. In these, the virus became a gene; in bacteria-lysis, the gene became a virus.

At the moment of two phage penetrating the bacteria, this has two phages and two genes, or three genes and

Four phages; but the ones that have come in have autonomy, as the genes of the bacteria do not acquire this knowledge as long as their protoplasm is not destroyed, starting to belong then to the number of phages.

Now the words of D'Herelle become a prophecy when he said that "in order to determinate the nature of life it was necessary to study the most elemental and easiest to study vital structure: the bacteria-phage".

We have found the way than can open a whole world of knowledge to science and can dissipate the mysteries that surround the vital emanation, this thing that comes out of live beings and that has its foundation in physic-chemical structures.

In order to be brief, we will not go further.

C O N C E P T S

April, 5th, 1960.

THE SPRING OF LIFE

This work is dedicated to complete some conceptual lagoons, because we consider it necessary for the understanding of the new facts discovered in all their extension.

An apoenzyme is a protean globule without activity and without life.

An apoenzyme joint to a coenzyme is a complete enzyme that has biochemical activity, but that can not multiply itself and therefore without life.

A special protein with DNA is a manufacture of proenzymes, a fraction of virus or gene, in one word.

An incomplete grouping of precursor proteins with DNA, is a provirus or pro-gene, in other words, an incomplete equipment that tends to get complete.

An incomplete grouping of precursor proteins with DNA is a virus or gene.

A grouping of genes is a chromosome, and here there is already enough complexity so that the different genes synthesize a proto- plasmatic structure that surrounds them, with which they get autonomy from live cells.

Some complex virus, formed by several genes and simple virus- can acquire that same autonomy give exit to bacterial germs.

A pro gene and a provirus are two thieves that steal precursors to the genes of the bacteria or fungus, in order to complete themselves.

The virus is an autonomic gene.

Gene is a virus that has lost its individuality by associating to others of different nature in order to form a chromosome or chromosomic equipment.

A carcinogenic gene is a gene that does not act according with the rest of the genes of the chromosomic equipment of one cell and, therefore, it has certain autonomy.

It is a gene as long as it forms part of the collective structure of a chromosome. It is a virus as long as it owns certain autonomy.

The strange precursor proteins, added to the carcinogenic pro-genes send out pro-enzymes, like the others, of the rest of the normal genes, but there is a difference that lies in the fact that while the normal precursor proteins send out pro- enzymes that do not enter into activity until they have come out of the nucleus, coupling then with the corresponding activating coenzymes. The precursor carcinogenic proteins are activated in the same nucleus, with which the gene acquires energy to auto-multiplying.

When a phago penetrates in the bacteria of which it was gene, it finds inside the bacteria these two structures: one in the phago that as autonomous sends out directly enzymes, and another one, its gene, that, although of the same structure of the same structure of the phago, only sends out proenzymes and can not declare itself autonomous becoming virus or phago, until the protoplasm gets naked.

This is why the phago, acting freely, lysates the bacteria, while its gene, in spite of being of the same nature, can not do it because it is unable to do it as it has a conditioned action of precursor.

Not all the genes are able to acquire autonomy becoming Phages or virus. Only those which can have in their precursors enough autonomy in order to adapt themselves to the new conditions of life.

The cell has procedures for avoiding that its genes declare themselves autonomous and they use them stopping the precursor of getting in touch with the corresponding coenzymes. They only would allow entering inside the nucleus those coenzymes that have the destiny of coupling with certain precursors that have to act because of necessity inside the nucleus.

One chromosome can have two, three, four associated genes.

A virus can be formed by one, two, three or more associated genes that come from the same bacteria or from different bacteria. But, in spite of being each element part of a vital unit, they lose the individual sense and this renounce makes them become a unitary vital structure.

They would be like autonomous chromosomes, or better said, complex virus with more than an associated gene.

The more associated genes a virus owns, the greater its facility is to give exit bacteria.

When the viral equipment becomes exit bacteria, it becomes gene equipment.

The diploid gene equipment of the bacteria only multiplies by simple division, when they are liberated by bacterial lysis, and then they become genes or haploid Phages, that necessarily have to use the sexual multiplication, with the coupling of the genes of different sex, the masculine gene becomes an anteridium and, the feminine, ascogonium.

The gene equipment of our somatic cells is the same as the diploid equipment of the bacteria. The chromosomic equipment of the spermatozoids, of haploid nature, is the same as the one of the anteridium of the virus. They have autonomy and they own polarity.

When a bacterium resists the action of a phago, it is that it has stopped his gene to become another phago.

If it has several genes and achieves to stop it to some, these stay, they can hold the life of the bacteria, but with the price of a obligated mutilation because of the genes that have been lost.

These bacteria usually are lisogen, because they get to establish parasitary equilibrium between the bacteria and the phago, since neither the phago can destroy completely the bacteria, nor the bacteria can eliminate the phago.

The bacteria that are more sensitive to the action of the phago are those equal to the ones that send it out; first, because the phago finds an suitable medium and, in the second place because, being this phago homologous for the bacteria, it can defend itself less from it.

The phago, like all virus, increases its virulence for a determined bacteria although, at the beginning, this is little sensitive, for the same reason that a virus increases its virulence through one step after the other, for a determined animal specie.

This growing of the virulence lies in the fact that being an elemental equipment and with an autonomy conditioned by the live cell, it has to adapt itself to the available enzymes, and such adaptation is progressively increasing.

Indeed we know that an apoenzyme, depending on the type of enzyme to which it links itself, does a different biochemical function. What gives specificity for a defined type of biochemical function is the coenzyme.

If, once adapted, during several generations to a determined class of cells - that give it a determined class of coenzyme - it is passed to another animal-specie, where circumstances change, it finds itself un-adapted and has to suffer a new process of accommodation.

If the equipment of precursors of a virus agrees with any type of coenzymes of the existent in the different animal species, it becomes a panzootic virus.

If it only agrees with the ones available in one definite specie, it only attacks that specie.

The aspiration of all viral or gene equipment is to acquire more complexity, to add more genes for assisting more necessities, for acquiring more autonomy.

But not all genes are useful for it. It only can associate with the ones that are complementary.

The increase of complexity is an aspiration of the living matter, because complexity is specialization, it is division of functions inside the cellular gene group, it is better adaptation to the medium which is at the end the one that puts limmits to the possibilities to the living matter.

From the protean globe to the enzyme we won in complexity.

From the enzyme to the gene and virus we won in complexity.

From the isolated gene to the pluri-gene equipment able to give an exit bacterium we won in complexity and autonomy.

From the isolated bacterial cell to the collective aggregation of Nitrosocystis, that assayed the cellular association joining through a mucose - precursor of the conjunctive tissue? - We won in complexity.

From the virus that needs to steal energy that comes out of the vital functions of the live cells, passing by the heterotroph bacteria that take energy transforming the wave length of the sun radiations through their pigments and use it to create organic matter starting from inorganic matter, we increased in complexity and autonomy.

From the infusion of microscopic seaweed of the plankton to the thirlobites and the bracken until arriving to the elephant and the sequoia we won in complexity.

From the amoeba, that performs a proto-plasmatic digestion of microscopic residues until the lion that digests an antelope, we have won in complexity.

Life arose from the first wet mud that was produced in the planet, when the vitalizing water fell on the nitrures and carbures of the incandescent epoch.

By passing from inorganic matter to organic matter we won in complexity.

The history of the living beings is the history of the increase of complexity.

If a poligene virus finds a gene the complements it, they associate.

If a poligene chromosome of a vegetative cell finds a gene - viric or belonging to a chromosome equipment of a

Bacteria - they can associate because of the same reason.

We would have to admit, then, three explanations to the process of cancer:

- 1.- The one of the progene, by the reconstruction of a pre- existent gene.
- 2.- The widening of the chromosome equipment of the cell through the capture of a new gene.
- 3.- The emplacement of a totally destroyed gene by another strange one.

Theoretically the three cases can be admitted.

The associated gene in excess, or for solving a lack - to which it would be induced by the polarity sent by a widower gene - or the strange added fraction to the pro-gene, act directly inside the nucleus, but also outside through the emission of their precursors.

At the beginning the organism does not notice anything, because the broadcast has little power. When there are many cancer cells, the broadcast wins in power and the organism, to its disgrace, has to take notice of it.

The action is, therefore, not only direct on the nucleus, but the strange enzymes alter the general metabolism.

In the blood of the cancer patient we find the enzymes sent out by the precursors of the carcinogenic gene and the resultant products of its enzymatic action that go on increasing in quantity, at the rhythm the carcinogenic cells increase.

All effort of treatment must be, then, done when there are few cancer cells, because after the tumouration becomes pernicious and strange endocrine gland that is each time bigger.

A virus of a transmissible tumour, as in the majority of the animals, is not a gene because it does not become part of a chromosome structure; it is not a rebuilt pro-gene; it is not a coupled gene. It is a not coupled and totally autonomous gene; a virus, in one word, but that acts the same way the carcinogenic not autonomous genes do, although with total independence of the chromosome structure of the parasited cell. It has come into the cell without permission, the opposite of the carcinogenic gene which is called by them or rebuilt by them.

Viruses have not uniformity as to create immunity. Some are more antigenic than others.

A gene, in order to be admitted to chromosome cellular group, has to have, necessarily, little antigenic force or none.

When we wanted to establish a immune anti-carcinogenic treatment, we met three cases:

- 1.- There is an indication of antigenic capacity in the added gene or in the strange fraction of the pro gene. The patients cure.
- 2.- There is no antigenic power. The patient does not benefit.
- 3.- Determinates a state of hyper-sensitiveness that translates itself in increase of local pain, when the vaccine acts specifically on the tumoural zone. The treatment counter-productive.

Regarding the malignity of the tumoural process, it will depend in each case of the type of the enzymatic actions coming from the activity of the precursors added to the pro-gene or of the added pro-gene.

There is no unique type, there many because many are the possibility of variability in their action of the different genes that can add themselves or in the quality of the precursors added to the pro-gene.

To this respect we have to make clear that the pro-gene can not rebuilt itself just stealing enzymes.

Enzymes are something of which we run out of, so what it has to steal is the factory of these enzymes, the gene protein that becomes part of the inherited patrimony of the thief.

Because of this it does not capture a simple circling enzymes but it tries to steal another gene its precursor factories: its gene proteins.

Why does do we run out of the protein of the enzyme? And why is the protein of the gene precursor a inexhaustible factory of enzymes?

There lies one of the great mysteries of life. The enzyme is like the battery of a torch; it lights the bulb until it runs out of load.

The precursor gene protein is, on the contrary, like generator of energy. It constantly throws electricity into the cables.

But it produces this energy because it is moved by the energy of a press of water or a thermal switchboard. At the gene or the thermal switchboard they are substituted by the DNA and the nuclear energetic systems.

The carcinogenic gene does not admit the normal march of the thermal switchboard. The energy supplied to the normal genes by the tri-phosphate of adenosine de-oxi-ribo is not tolerated by it.

Lifts the gate to hydrolyse the DNA and then the normal supply of energy for sustaining vegetative life has been surpassed.

The energy is too much, the cell burns and in order to decrease the energetic potential it consumes it in a multiplicative task.

The dam does not run out of water, because it rains and the streams hold their level that is the energetic level.

At the genes of cells, the energetic level does not decrease either, because the DNA spent is changed by the streams that come from the protoplasm that is full of RNA and these streams are running thanks to the rain of the feeding and breathing.

The virus can not allow themselves this luxury. When the dam is emptied they have to go where there are streams with running water that fills it again and these streams only exist for them in the live cells.

When the cell where they are, dies, they still have the full dam, but they try to spend it as slowly as possible and they eliminate the luxury of multiplication, which requires a lot of water.

For them it is convenient the cold, as the lizards. The lizards spend the Winter half asleep and without moving. This way they resist without eating a lot of time. When the first heats of spring are received on their coats, the lizards runs, but then it has to eat.

When the heat comes to the viric structures, the level of its dam descends with an alarming speed - if they are outside the live cell - and they quickly get inactive at running out of the last rest of water.

If a phage is a being that has gotten independence of the bacteria, there is no doubt that it is a perfect virus and not a virus in formation.

It will be, in any case, an unigenic virus or digenic but a virus that is able to increase becoming poligenic.

We are managing a minimum structure of the unitary gene, the minimum matter fraction able to multiplying by itself.

The poligenic virus is formed by additions of gene unities able of multiplying by themselves independently.

A more complex life has been created as a result of the aggregation or addition of more simple vital units.

This is not creating life, because for this we have to create the vital unit: the gene or the unigenic virus.

We will occupy ourselves about this in another work.

A carcinogenic gene is a gene that does not act according to the rest of the genes of the chromosome equipment of a cell and therefore has a certain autonomy.

Therefore it is a gene as far as it is a part of the grouped structure of a chromosome and it is a virus as far as it has certain autonomy.

The strange precursor proteins, added to the carcinogenic pro-gene send out pro-enzymes, like the others, but there is one difference that lies in that while the normal precursor proteins send out pro-enzymes that do not enter in activity until they have gone out of the nucleus, by coupling then with the corresponding activating co-enzymes, the precursor carcinogenic proteins are activated in the same nucleus, with which the gene acquires for auto-multiplying.

When a phago penetrates in the bacteria of which it was gene, two structures meet inside the bacteria: one in the phago, which as autonomous directly sends out enzymes and, another, its gene, that although of the same structure of the phago, sends out only pro-enzymes and can not declare itself autonomous becoming virus or phago, while it does not stay naked of protoplasm.

This is why the phage, acting freely, lyses the bacteria, while its gene, in spite of being of the same nature, cannot do it, because it is not able to because it has a conditioned actuation of precursor.

Not all the genes are able to acquire autonomy and becoming Phages or virus.

Only those who are able to have in their precursors enough autonomy for adapting to the new conditions of life.

The cell has no procedures to avoid that its genes declare themselves autonomous and do it stopping the precursors from getting in direct touch with the corresponding enzymes. They would only leave to pass inside the nucleus the co-enzymes destined to couple with certain precursors that have to act by necessity inside the nucleus.

A chromosome can have two, three, four associated genes.

A virus can be formed by one, two, three or more associated genes coming from the same bacteria or from different bacteria. But in spite of being each element a vital structure, they lose individual sense and this renounces makes them become a vitally unitary structure.

They would be as autonomous chromosomes, or better said, complex virus with more than an associated gene.

The more associated genes a virus has, the bigger its facility to give exit bacteria.

By becoming exit bacteria the viric equipment has become genic equipment.

Like the diploid genic equipment of the bacteria only multiplies by simple division, at being freed by bacterial lysis they stay loose and the come up genes or haploid Phages.

VI. - IN THE FOUNTAINS OF LIFE

April 20th 1960

- a) The artificial protoplasm.
- b) The mysterious nuclear membrane.
- c) Another cause that generates cancer.
- d) The unified diversity.

Some more journeys have driven us to the end of the problem that we boarded long time ago. We have the security that IT will produce real sensation to those that have been at their gestation through the previous work. This does not mean that we think our work is ended, because, although we have arrived to the fountains of life and we have been a witness of the vital fluid, there still remains as a future task: to create it artificially.

With the decisive weapon that is the artificial protoplasm, we hope to obtain it, but this last road will impossible for us to be boarded without official aid or private aid.

To each chapter of the four that compose this work we could dedicate one separate one. But we are sure that the concepts will be better understood exposing them briefly.

- a) The artificial protoplasm

Nearly 25 years ago, when we started to have the first news of the virus, sitting as students at the desks, we had the security that something related to them had not been explained to us.

And this was why the virus had the absolute necessity of living inside the cell. But, simultaneously with this question we had the security that we had been predestined to solve this enigma.

We were sure that the virus needed a live cell because this supplied them something matter, and when to this matter something was supplied to them in a culture medium, they could be grown perfectly and would be accepted the same as the protoplasm of the live cell.

In work XI we have seen how the gene of certain bacteria lysated by an immune organism became a phage or virus of this same bacteria and this explains us exactly why the virus need to live in the live cell since they are autonomous genes.

Therefore, the necessities of the genes and virus are the same, since their nature is identical and their constitution, too.

They are only different in the circumstances that will be explained in the chapter b) The mysterious nuclear membrane, but these differences are only functional.

We do not make history of the time consumed in order to arrive to the demonstration that the measures proposed were totally accomplished. We are only going to offer the results.

We, therefore, are going to explain how to build artificial protoplasm and we will be able to see that it is of a logic and easiness that is extraordinary.

For its building it is enough to observe what a man or animal does for holding his vegetative life.

First observation:

The man eats and after he digests what he has eaten, or what is the same, he hydrolyses the complex matter that constitutes his habitual food.

It is enough, therefore to grind the food that any man can eat any day and to put them under pepsic, erepsic and tripsic hydrolysis.

To filtrate, isotonise, neutralize, pack and sterilize.

When this comes out of the sterilizing apparatus, we have inside the flasks a dead protoplasm.

Second observation:

The man breathes and at breathing he fixes oxygen to haemoglobin, making it become oxy-haemoglobin.

If we add blood, the dead protoplasm is accepted immediately by the virus and genes and this demonstrates that it no longer is a dead protoplasm, but a protoplasm as dynamic as the one of any live cell.

That, which was not explained to us 25 years ago, was possible to be explained by us 25 years after.

Explained this simple way, the fundamentals of the artificial protoplasm, we have still to explain the necessary technical data for obtaining it as perfectly as possible.

We take pieces of calf thymus, liver, meat, eggs, yeast, semoline, etc. and all is thinly chopped. We add water and it is put under pepsic hydrolysis under the conditions known. After an erepsic and tripsic hydrolysis in the conditions known also.

We add in the adequate quantities all the possible co-enzymes under the form of vitamins A, C, D, E, PP, B complex, totenic acid and folic acid, copper II, cobalt II, magnesium, calcium, zinc, molibdenus, fluoride, iodine, potasic chloride, ammonio salts and phosphates.

You boil it again, you filtrate it, isotonise through cryoscopy.

You neutralize with potentiometer and you filtrate and sterilize in the sterilizing apparatus at two and a half atmospheres.

Before sterilizing you can add antibiotics of a wide spectrum, since the virus resists them perfectly and you avoid possible contamination of the products to be sowed.

The dead protoplasm is already prepared. Now we can take blood of a pig with experimental pest or of a patient with flu in feverish period, or any virosis that develops in blood.

We add 0,5 ml for each 10 of artificial protoplasm with which, besides sowing the virus, we have added the necessary blood so that the dead protoplasm becomes live.

Put the flask in the culture stove after sowing.

The observation will be done the following way: ocular 20, dry objective 45, curve mirror, artificial illumination. You shake the culture and take a drop of it. (With a syringe of insulin or a holder of 0,50 of diameter - that is deposited on the surface of the slide. You let fall on the drop a fine slide cover and the preparation is put in the cart of the microscope.

Between the first and the second hour the viric anteridia, fixed to the red globules, start showing up and after, the images drawn on part VII of this work will successively appear.

The viruses are already accepting the artificial protoplasm because the matters that we have put in it are the ones that the live cell gives to virus and genes. The question was answered.

So, we can say that the protoplasm of the live cell is only a medium of culture that gives the virus and the genes their total energy and this protoplasm is being renewed with excretions and eating and breathing, which is a consequence of the human instinct of survival, of a high delegated representation of our cellular aggregations.

It is natural that having available the artificial protoplasm we would have arrived to conclusions that are very curious that would drive us to watch the movements of the vegetative life.

These conditions are going to be picked up in the three following paragraphs.

b) The mystery of the nuclear membrane.

In work XI we have determined that the phages are genes of bacteria made autonomous forcedly when the organic defences, acting specifically by acquired immunity, have lysated the protoplasm of some bacteria and have set free their genes.

This is why, when a man dies of typhus, he lacks phages in his excrements, while they always appear when the individual is able to defeat the illness and because of the

same reasons they appeared in the demonstrations of Bordet and Ciuca - as we say in Work I - when the guinea pig became immune to the coli-bacilli after having been injected with several sub-lethal doses. The bacterium is lysated in these conditions and its gene is liberated remaining in forced autonomy.

But we have already said that an autonomous gene is a virus, and as a virus, it needs to live inside a live cell.

It is natural that it looks for it and as the most homologue that it finds is the one of which it was gene, it reverts its action against the bacteria from which it proceeded.

We think that this has been explained and has been understood with easiness and clearness, so we are going to go on.

At the same moment in which the virus-phages gets into the bacteria of which it was a gene before, there are inside the bacteria two different structures: one, the gene of the bacteria; another one, the phage, that because it has been gene of another equal bacteria before, it is equal to the gene of such bacteria.

But although their structure is identical, their way of acting is not the same.

Now we have to explain the mysterious performance of the nuclear membrane.

A gene and a virus are schematically a mass of DNA covered by a protean mosaic of enzymatic precursors.

Well then: the gene is wrapped by this nuclear membrane, and this membrane stops the existing co-enzymes in the protoplasm to get in touch with the precursors of the gene, that, therefore, lacks energy for multiplying, since it has to limit itself to make pro-enzymes, that are not activated while they do not pass to the outside of the nuclear membrane, in other words, the protoplasm.

The nuclear membrane controls them and it makes them be "half asleep", stopping from multiplying and from recovering their sense of vital units.

We can consider the genes as controlled and "half asleep" virus which the rest of the cell is not interested in waking up.

They pick up the energy that comes from their fermentative cycles and, through direct synthesis, they multiply actively.

But from here results a circumstance that we are going to explain next.

c) Other generator causes of cancer.

Imagine that, after having explained the above, the nuclear membrane tears or gets partially dissolved, or loses its chemo-physical selectivity that stops the co-enzymes from passing through.

Then it will occur that when the co-enzymes get in touch with the precursor proteins of the genes, they "wake up" and they pass from gene to virus.

But they are virus that form part of a chromosome aggregation and as such viric chromosomes they start multiplying, having each mitosis the apparition of a new vegetative cell, with the same deficiency of its mother and that will produce, therefore, new mitosis.

This explains perfectly the action of the carcinogenic substances of the ciclo-penta-fenantren group and others contained in coal tar, because their action would be to destroy or modify chemically the selectivity of the nuclear membrane for the coenzymes.

We can consider our cells as formed by two parts: one, the protoplasm, which is the medium of culture where the viric vital units are multiplied and where, gene vital and, another one: the elements gifted with life: genes.

This way we can consider the genes of our cells as "half asleep" virus and taking into account this concept, surgery has to consider our tissues as culture of virus, treating them as such. The tissues will keep in better conditions and more vitality at a lower temperature, because of the reasons we explained in work XII. But now we are going to perform the last step ahead, by now.

c) The unified plurality.

The nuclear membrane performs another function and now we will explain how we have to understand the loss of autonomy or the "half sleeping", as vital unities, not only of the genic elements in the chromosome, but of the cells in the formations and pluri-cellular structures, and the appearance of vial entity of superior category, as result of the addition of vital associated unities.

Virus, as autonomous elements, have a sense of individuality, but the gene added to a cromosomic structure loses this "sense" and the association or the set of elemental unitary lives of the genes that compose the chromosome, add, coming out, as a consequence, one unique life that is the one of the cells when they are isolated or the one of the unicellular beings.

One cell formed by fifty genes has, externally one unique life that is the addition of the lives of its 50 vital units that are associated.

But the same occurs with cellular associations, because the cells lose their "individual sense" and all of them form one life that translates outside as a unitary form, being perceived as a homogeneous whole.

The life of the billions of live cells of a donkey is united adding themselves, renouncing to autonomous life. The life of a donkey is presented to us, as a consequence, as an exterior unitary reflex: its donkeyness of donkey.

But if this donkey gets shot by a machine gun and dies, only its donkeyness has died, at the moment, which is the representation of the collective life of the cells. Because if we follow the procedures of Carrel, Burrows, Lefi, Macbruni or the procedures of the rolling drums, we will be able to prove that several hours after the donkeyness died, the cells of the donkey are still live.

From this results that several billions of collective live cells are a living being and that these same billions of autonomous live cells are a dead being.

When the donkey dies, what dies is the collective life of its cells, because the circulation and the breathing have stopped, and these are the instruments of relation that induce the cells to make their lives collective and to put at disposition of the community their vital emanation.

When collective life disappears, the cells stay isolated, and in a desperate effort, they use the reserve matter. It is when the body loses rigidity because the autolysis has started.

The shots that killed the donkey only destroyed the cement that joint in only one block billions of gene and cellular lives.

But the cell dies, also, when the life disappears in the collective of genes, and the genes, when the DNA nucleus is consumed and it remains unable to start its enzymatic equipments. This is, when the enzymes lack energetic systems able to help in synthetic tasks.

At last, the enzyme that forms part of an enzymatic collective of the gene, can not die, because what lacks life cannot die.

The vegetative life of superior and inferior beings is, as a consequence, the result of three aggregations.

First the enzymatic equipment that forms the gene meets. After, several genes associate in cromosomic equipment and they give place to the cell and, at last, the cells meet and give place to living beings.

The enzymes specifically catalyse biochemical functions and are, therefore, functional unities.

The genes and virus result from the association of a complete cycle of functional unities and the minimum structure that owns life: they are, therefore, vital unities.

Around these two more or less complex associated units circles the life of all beings.

No living being, nor even unicellular beings, is a vital unit, because it is a result of the association among them.

In the cell, only the genes are live, the rest is their medium of culture, to which the functional units sent by the vital units lend the necessary dynamic. The renovation matter are supplied by the breathing, digestion and circulation and the waste is eliminated by the urine and breathing, functions done by the complex being representing the community of vital unities.

THE FUNCTIONING OF THE VITAL UNITS (VIRUS AND GENES)

October, 20th, 1960.

We have waited for a while to see how the ideas of the rest get close to the conclusions that we have already exposed in previous works, since because of the modesty of the author, or because of the lack of diffusion, because of the lack of preparation for a scientific critic honestly based, or because of fear to certain philosophical prejudices or with the hope of making own the other's idea, what is certain and true is that there seems to be a silent conspiracy.

And this silence exists against the interests of all, because time will tell us that we are losing a precious time in issues that are as fundamental as the knowledge of the genesis of life and the majority of the tumour processes.

And this work is precisely destined to clear the matter in such fundamental areas as how the vital units work, or in other words how does life flow and through which mechanism.

This work will have two parts. In the first one we are going to demonstrate that through the procedures followed by the current bio-chemistry we are so far of obtaining vital units that it has to be considered almost impossible and, as a consequence, we have to arrive to the conclusion that we need new leading in current research in order to be able to create them, allowing us some norms that could constitute a specie of vital school inside the microbiologic biochemistry.

In the second part we are going to explain the functioning of the vital units.

One vital unit is compound of a nucleus of DNA and a cover of two types: one amorphous and one protean. The protean fractions are isolate located one from the other at the external part of the vital unit, in the periphery, and their number varies between 40 or more than 100.

These protean fractions or proteins are, when they get off the vital unit, the pro-enzymes sent by the genes of the cells and that make become dynamic their protoplasm. They also are the fractions of the virus activated "in situ", thanks to their activation it is possible for them to multiply actively.

We had already said the constitution and structure of the vital units and the one that have read my previous works will have a clear idea of their nature and structure; but for a greater clearness we are going to refer ourselves to a scheme given by Finch and

Klug, of the University of London, of the virus of polio, obtained by roengt-gram. It is a cube surrounded by satellites in spheres concentric to its geometric centre.

After, we are going to explain how this vital unit works; but now we are going to demonstrate the enormous difficulty to go further on with the classic procedures of Biochemistry in this kind of investigation.

Each pro-enzymatic protein of the ones that constitutes the crown of satellites has a different order of the amino-acids and, besides, a number of them that pass them from the category of poli-peptide to the category of protein, and this is of such number of amino-acids that the possibility of study escapes from all the procedures of determination of its structural sequence because there is none that is able to get close. So the hydrolytic procedures, helped by the colorimetric methods of chromatography on paper, etc.. will only tell us the amino-acids that are in the total mass of the pro-enzymatic proteins, but not their order in each of them.

None can illustrate us about the sequence of pro-enzymes whose peptide chains are more than 300 amino-acids.

Neither the oxidation through a. periodic, iodimetry, colourmetry, the procedure of Fischer of fractioned distillation of the methylic esters of amino-acids, nor the procedure of chromatography in the column of Moore and Stein, nor the enzymatic procedures of de-carbo-oxilation , nor the procedure of topic dilution, nor the method of Sanger, of Edman, of the carboxipeptidase.

And if this was possible, we would besides need a procedure that could isolate each pro-enzyme and study its frequency.

This, in the most elemental of the vital units,-would be to study 40 or 60 different sequences and, after, to synthesize them and put them back in the same order they were around the nucleus of DNA.

We have also to take into account that only by changing the order of an amino-acid we have totally changed the meaning and the functional kind of the pro-enzyme .It is enough with an example to understand it: the oxtocine only differs from vasopresine in two amino-acids, being equal the rest of the seven and being in the same order; however they have opposite physiologic activities.

Life, then, flows, from order. From the order of the amino acids in the chain of each precursor, from the order of each nucleotid in the chain of the nucleinic acid and from the order of placement of the pro-enzyme in the crown of the vital unit.

This order, no matter how optimistic man believes himself, will never be synthesized at the laboratory of any biochemist.

Anarchic condensations of nucleotids as the ones done by the doctors Ochoa and Kronber will be able to be done, from anarchy to order goes an abyss. The same as from dead to live.

If this is not enough clear yet, we are going to bring in our help an argument that makes us feel somehow dizzy and that will demonstrate us that definitively that we have to change the steer.

We have said that only by changing the order of an amino-acid or changing it by another in a chain of 300 amino-acids makes to change the specificity of this.

Well we have, to everybody's surprise, Synge's calculations. For a protein of molecular weight of 34.000 and only 12 different amino-acids and with a total number of 288 there are 10 elevated to 300 possible isomers. With only one molecule of each isomers that existed, they would make a total weight of 10 elevated 280 g more than the total mass of the earth that is 10 el. to 270.

Do you think that, after these arguments, it is possible to create vital units by laboratory synthesis? We believe that not, because although the 40 different proteins were created - thing that is impossible - then there would have been necessary to order them, not only among themselves but also in relation with the DNA, as we will see later.

And although dr. Ochoa has already explained how DNA and RNA work on protein, it remains to us one reflection that we can translate into a popular question that says : Which was before: the hen or the egg? That taken to the ground that interests us, it can be translated into this other one: Which was before: the protein or the RNA and the DNA?

If the protein was before, it was this the one that carved the DNA. If the DNA was before, it was this one which carved the protein.

In other words, if our thesis is true; that the instinctive grouping of enzymes in the team can originate a vital unit, it is true that this aggregation carves its own central nucleus -its own energy dam, as we said in the seventh work - and in this case it is the protein the one that carves itself its nucleus of DNA.

The initial ideas for changing the steering in order to create vital units - without pretending to create any school - is to follow the mechanic followed by Nature and that is read in our first works.

It is in the coming up of the virus of pig pest, by example, where we have seen how some bacteria considered as producers of secondary infections finished "building" it by giving it enzymes, and the virus had the same tropism of the last bacteria that gave it the last enzymes, whose coupling had given as a result that a provirus became a complete virus.

It is true that none of this is done with spontaneously and that and induction is necessary, but we can provoke this induction.

Let's put an example of how you can provoke this induction: let's take 15 or some pigs and let's inject them each by intra-peritoneal route a different bacteria from the ones that produce pig illnesses, in sub-lethal quantity.

After a period of period inoculations, let's put together the peritoneal exudations of all few hours later of the last inoculation and let's inject this joint exudation to new testing pigs.

It is very easy that we have synthesized vitally, leaving the different elements to order themselves their own way, a vital unit: the virus of the pork pest.

Because if we have started from bacteria only, and after we have filtrated the peritoneal exudations, with which we have eliminated the bacteria from which we started and a pest virus appears, with no doubt it has been created, because it did not exist before.

This may be not considered "to create life" from an orthodox point of view, because the pest virus could have been formed by aggregations of autonomous genes - from phages that came from the genes of the bacteria, and these phages had already life; but we have to start from something.

We are going to give now our explanation of how vital units work. Observing the mentioned scheme you can see three kinds of elements or structures:

1) The exterior crown of precursors of purely protean nature isolated one from the other. 2) One amorphous stuffing zone 3) The central crystal of DNA.

These vital units can only live in the live cells because they need to find a medium where they find amino-acids and free nucleotids, which they condense and order.

The same as a lino-typist. If we solder the characters he manages, he will not be able to compose the press article. If we let them loosened, he will be taking them in order until he has the article.

Our thesis is the following:

The vital unit - gene or virus - inside the live cell finds loosened the press characters - amino-acids and nucleotids - and orders them. But in the vital unit there is not only one order but many orders and this is why things have to occur the following way:

Observe how among the precursor proteins there are stuffing areas. Well, in as many points of it as proteins exist, there are condensation zones.

This is: in a virus of 60 precursors there will be 60 condensation zones.

In each of them the amino-acids go in and the nucleotids, as in the article of the newspaper that the lino-typist does, go in the press characters. This joint union of nucleotids and aminoacids makes this zone to have an amorphous structure.

This series, when it is ordering itself, directs as a current of lava to the precursor, stuffing the crater left by the pro-enzyme before. When the new pro-enzyme gets off, a new crater is left and it is stuffed again by the current of lava and this occurs in one vital unit with 60 precursors, with 60 different orders.

This is natural because the crater has a special relief and to it one determined amino-acids adapts and not other, one chain of a determined order and not another. The atomic tensions stop it and the different space structures that have to enter in the holes made at measure.

But the mobile current of amino-acids and nucleotids separates when it arrives to the border of the crater where the new pro-enzyme is going to be created or carved, entering in it the amino-acids according to an order, while the nucleotids go to the nucleus - in mission of streams that are going to fill the energetic dam, as we said in the tenth work - stopping it from disappearing by wearing away the central nucleus of the DNA.

When it is run out, as we saw that occurred with the virus kept at 37 °C , the vital unit runs out quickly because of the lack of energy.

In our artificial protoplasm the vital units find, in the same conditions of the live cell, the amino-acids and the free nucleotids, besides the oxidative systems and, therefore, multiply.

On this point an absolute silence has also been kept, and really they are issues that to keep them is almost criminal.

In the next work we are going to occupy ourselves of issues of oncology.

MULTIPLICATION, MUTATION AND SPONTANEOUS FORMATION OF THE VITALS UNITS

December, 5th, 1960.

We have referred ourselves, in the previous, work to the functioning of the vital units. In this one we will see how they multiply, the fundamentals of mutations and of their spontaneous formation starting from "vitalized enzymes".

In order to remember the structure of these vital units (virus, phages, genes) we are going to repeat graphically the figure of the previous work.

But this is the structure that they must have at total functioning inside the live cell, because when they come out of it, or, when the cell that lodges them dies, they protect themselves with a membrane because of the presence of lipids, in order to avoid that their pro-enzymes suffer activation due to strange co-enzymes.

This membrane cover is the one that differentiates in protoplasm certain virus, given place to the "bacterial germs of exit" when the conditions of the inert medium to which they have been incorporated allows it.

When a virus is not able to give an " exit bacteria " or the conditions of the natural medium or inert artificial, they will more or less run out of energetic reserve in which the grade of hidratation influences and the temperature also, finishing by its inactivation or reduction in simple enzymes.

If the vital unit gets in touch again with one live cell, the emergency membrane gets off which it can do by two procedures.

If it has direct access to the protoplasm, it gets into it and there the outbreak of the membrane is produced and this liberates the vital unit.

If it does not have access it sends out a funicular prolongation that is fixed to the proto-plasmatic membrane of the bacteria and after a kind of birth through the funiculus the naked vital unit passes inside the bacteria, in the case of the phages.

But it is very possible that the entire vital unit does not pass but fractionated in sub-unities.

Let us see what happens when the vital unity - virus or phages- is inside the live cell and proceeds to multiply.

We know the way of reproduction of any cell, mitosis, produces an exact duplicate of the chromosome equipment, because when the cell is divided into halves, the two daughter cells are exactly equal.

Let us observe now figure 1 and we will see that wherever the sphere of the vital unit is parted, there are no two equal halves left, qualitatively considered. Each one would take one part of the enzymatic equipment resulting two incomplete fractions or provirus that do not auto-multiply because they can not complete bio-chemical cycles of the ones that captures energy for multiplying.

In consequence there is no procedure nor possibility of auto-multiplication this way, and it necessarily has to use another one, happening the curious circumstance that the vital unity gives place to as many inferior units or subunits as proenzymes it had associated to vital unit.

What do they do, once disperse these subunits? Let us hear the opinion of Luria.: The importance of the nucleinic acid for the reproduction of the Phages can be deduced by chemical investigations. The Phages have a 40% of de-oxi-ribonucleic acid, but the cells that lodge them (collibacilus, by example) have both classes of acids.

At penetrating the phago in these bacteria invert the metabolism of the nucleinic acid in them in such way that only the deoxi-ribonucleic acid is form and the same the

protean synthesis is inverted, because the infected bacteria forms exclusively albumine of the phago.

If the protean synthesis is modified, the infected bacteria changes also the synthesis of the nucleic acid in the corresponding measure and from these results we can get to the conclusion that the formation of the protein of the phago has to adjust itself necessarily to the one of the nucleic one."

In work XIII we said that the vital unit was formed by the association of "functional units" and now we see how they separate from these, getting independent in order to multiply under forms called by Schramm "subunits".

This form of isolate multiplication done by each "vitalized enzyme" to, later, rejoin again, is the only viable way of rebuilding exactly the new vital unit.

But, where is the possibility that the "subunit" of Schramm, or "vitalized unit" or "vitalized enzyme" (ours) is able of multiplying once separated of the vital unit and which is the mechanism of this multiplication born?

We have seen before that, following Luria "when a phago penetrates bacterium, the metabolism of the nucleic acid is gotten upside down in such a way that only de-oxi-ribonucleic acid is formed."

This means that the "vitalized enzyme" or "vitalized functional unit" gifted with an energetic potential that it took at becoming "vital unit" , transforms the ribonucleic acid of the bacteria in own de-oxi-ribonucleic acid, previous hydrolysis , because it can not accept it with the same order that the ribonucleic has in the bacterial cell.

We have to remember that in the works III and IV we talked about the transformation of the RNA in DNA, with intermediate hydrolysis, left free the de-oxi-ribonucleic nucleotids and that these energetic systems - not mentioned before by anybody - were the ones that gave enough energy for the auto-multiplication, being, therefore destined to reproductive tasks, while the normal ATP and ADP rather seem to be used in metabolic tasks.

If we observe fig. 1 we have to imagine the sub unit as a fraction of the vital unit and, therefore, built qualitatively as this last one, but with only one proenzyme.

It will be formed, therefore, by the proenzyme; an inactive zone to Roentgen rays, formed possibly by a mixture of protein and DNA as it is represented in figure 4.

Let's examine now the intimate mechanism of the duplication.

Friederich Freksa gives a physicochemical interpretation and in his opinion, multiplication starts because the duplicator, the unity that is in its way of duplicating, in our case the viric protein, attracts the adequate matter and it joins them together in a specific form, supposing that in this process the forces of Coulomb have an intervention. In his opinion about the type of specific loads of the protein with

multiplicative capacity, the same protein with an identical model of loads must be formed.

The question is how it achieves to reproduce identical structures, because if this is a possible reality, it can be presumed that the positive, in other words, the albumine that has to reproduce, becomes its negative.

This transformation would take place through the nucleinic acid, in such a way that the electronegative groups of the phosphoric of the same join the positive of the arginine, with which a specific bipolar order is obtained.

In the negative that is originated, the positive of the new protein is formed as a photographic plaque.

"The neo-formation of the daughter structures only can take place on the surface of the molecule that is going to reproduce and therefore, when the surface of the duplicating is susceptible of react with the medium.

This is not the case of a compact viric molecule, because it is more possible if this divides in small units, in other words, when small subunits are formed as own forms of reproduction. Due to this division they become a dynamic state more suitable for reacting through the surface of contact with the inside of the lodging cell."

We do not agree with this opinion of Freksa as what refers to the widening of the vital unit that this has a goal the increase of the surface, because our interpretation of this dispersion of the surface is the following: Each pro-enzymatic protein that composes the vital unit is different of the rest in its amino-acid order and, therefore, functional and structurally different, as it corresponds with the diversity of functions that they have to do in the biochemical cycle ruled by the vital unity.

As each pro-enzymatic protein of the vital unity has to be carved by a DNA that is different, because they are different the ones from the others, there is the necessity that each one owns its own mould of DNA, resulting that in the zone that is underlying each protein, there is a DNA that corresponds to it specifically.

As each vital unit can have an equipment of more than 60 units, it would come out that there have to exist 70 or more types of DNA that were different.

This circumstance gives such a complexity to the vital unity that dispersion, by this reason, is imposed.

Another reason is that DNA occupies in the vital unit the centre and, as the energy that has to be used in duplication, comes from it, it must stay uncovered and for this there is no other possibility than dispersion of each vitalized functional unit by separated. This is because for the mission of elaborating and supplying proenzymes it is enough with the condensation of aminoacids and free nucleotids on the condensation zones of the vital unit, as we explained in the previous work. But for multiplying they need to capture the energy that comes from the cellular RNA hydrolysis and this is not possible

if the independent functional unit does not act catalytically with its enzyme and supplies initially for it its own energy, represented in its specific fraction of DNA that, as a consequence of the dispersion, becomes uncovered.

And, last, this dispersion represents a confirmation of our theories, based on clinical observations in numerous epi and enzootias, because if the vital unit was formed by the spontaneous association of "vitalized enzymes", these have not lost the concept of "functional units", that, in this case, result from the addition of " functional vitalized units. "

In the first work we said that "really the autonomous functions of the enzymes could not be considered as vital manifestations because the enzymes do not multiply by themselves, but that these autonomous manifestations, that are performed with complete independence of the being that created them, carry an activity that is, in itself, the most elemental manifestation of vitality."

Now we see that if the enzyme joints to a load of DNA, it not only has a functional capacity of enzymatic kind, but it is able also of auto-multiplying.

This gives an enormous force to our point of view, exposed in October, 1952 in the magazine Medicamenta, edition of Pharmacy in which we said, in the work titled "On the origin, formation and nature of the filtering virus", that "the addition of molecules lacking own life -enzymes- give, by association, a molecular complex gifted with own life and able of multiplying, although this multiplication is linked to the presence of live cells."

Now it is getting completely understandable that the "vitalized enzymes" can get together ones to the others, causing the emergence of "the vital unit", because it is clear that if they already have certain auto-determination and their enzyme only catalyzes one function, they tend to join others that complete a synthetic and liberating cycle of usable energy for them. If the "vitalized enzyme" is able to auto multiply, this is due exclusively to the load of DNA elaborated in the vital unit, because the subunit consumes the one that has been by the vital unit, but it is unable of regenerating it by itself. Because of this it has to meet as a team again in order to load again the used energy.

We explained the duplication of the "Vitalized functional units" the following way:

"These vitalized functional units" or "vitalized enzymes" transform the protoplasmatic RNA of the bacteria or parasited cell in free nucleotids by hydrolysis. This hydrolysis, as exergonic process causes liberation of energy that remains accumulated in the system, with a probable transformation of the adenilic in ATP. Later, this ribosobic ATP is turned into de-oxi-ribosic, and we do not know if the loss of the oxidrilic oxygen in 2 of the ribose, in order to become 2-desoxiribose, means another elevation of the energetic potential, but it is possible that it has some intervention of this kind. Later comes the condensation of the ATP, and the rest of the phosphorilated nucleotids, on the free face of the enzymatic protein of the "vitalized functional unit", giving place to DNA that adjusts to the structure of the protein.

This condensation, as an endergonic process, needs an energetic supply, but, as we have seen, the elements to be condensed have accumulated in themselves the necessary energy for it.

The intimate process must be done the following way: We know that the pro-enzymatic protein is of globular nature and that this type of proteins has its chains of amino-acids rolled up in spiral, being able to be considered as a wool ball which are used by women for knitting.

This same circumstance makes us think in the possibility that Freksa's hypothesis is not true when he says that "in the negative that is originated, the new positive of the protein is formed as in a photographic plaque", because it is clear that a negative does not reproduce the exterior relief of things and only one of their faces.

But, how can the disposition and the structure of the inside chains of the wool ball, represented by the spirals that compose the globular protein, be printed by this process?

It is clear that by this procedure we only would be able to copy the external surface of one of the faces.

We need to find another explanation and we think it is more logical the one we develop in the following lines.

The wool ball that represents the globular protein starts undoing beginning at one end and joining another chain of DNA that joins it through condensation, following the specific structure of the protean thread that is being undone.

When the ball is completely undone, the proenzyme of the "duplicant" has passed to the "duplicated" and in the underlying zone of this protein a DNA zone has been formed, since the protean chain has separated again from the DNA chain. If we pull the two ends of both chains, we will bring two different chains, but coincident in their space holes, in the polar similarities and in all the circumstances that make a chain specific for the other.

At the duplicant stays the crater where its empty proenzyme rested, but it keeps the holes and relieves and another proenzyme condensates again in the form explained in previous works, accompanied by another chain of DNA that takes the place of the DNA spent at the cellular hydrolysis, keeping something more of the energetic reserve of the "vitalized enzyme"

It is possible that Freksa's thought is true in what is related to the intervention of Coulomb's force, because there is a need of a force of that nature so as to attract the hydrolyzed nucleotids towards the protean chain.

But we have still not analysed the function of the inactive zone of the vitalized enzymes and the role they perform.

For us it would be a reserve zone, in other words, that in this zone the chain of amino-acids has not gotten off the DNA and in case of emergency they get off, giving place to a last proenzyme and to a last energetic reserve.

When the duplication finishes, the two vitalized enzymes separate, starting a new duplication on their own using the same mechanism, giving as a result that in the duplicant the DNA carves the pro-enzymatic protein but in the duplicated it is the protein which carves the DNA, for which we still do not know what was first : the hen or the egg.

We think that instead of going on saying that DNA carves or takes photographs of the protein, we must say that it takes a film in all its length in the process of undoing.

The duplicative series continues sustained by the metabolic energy of the live cell parasited until it dies because almost all its RNA has become DNA, because it passed, and the protein characteristic of the bacteria, to the phagic subunits.

During this multiplicative process there is a latency period as what refers to contagiousness; but when this period ends the contagiousness suddenly increases from 100 to 400 times, to stay afterwards constantly.

This growing of contagiousness coincides with the moment in which the vitalized enzymes meet again in order to re-compound the vital units: virus, Phages and genes, moment in which the bacteria suffers the lysis, staying free the new Phages.

Polarity _ whose type was explained in work VI stops two vitalized enzymes of the same nature from entering in the vital unit, and so the reconstruction through reunion is done identically to the mother virus, or initial virus, unless other vitalized enzymes are free and strange but able of forming couple. In this case they enter to form part of the pro-enzymatic team of the vital unit with the following widening and characteristic mutation.

Remember this was explained by us the magazine *Medicamenta* and later in the first of these works when we refer ourselves to the mechanic of formation of variants of the glosopeda virus.

This perfectly understandable and it is confirmed by the fact, demonstrated by Doermann and Anderson, that the bacteria-Phages are able of interchanging genetic factors, because when we infect a bacterium with two different Phages T2 y T4r, we find afterwards re-combinations of the forms T2r and T4 together with their parents.

But this does not only occur with Phages, because also two genes belonging to two different bacteria can interchange genetic factors and so seems to have been demonstrated by the biologists of the Pasteur Institute, François Jacob and Edouard Adalberg, who explain it so: "Until now it was believed that besides the joining of a male and a female, there could not be transmission of genetic elements from cell to cell. The law seems to be that half of the chromosomes of the male and half of the

chromosomes of the female joined between themselves in order to supply the new cell their inherited background."

But they have demonstrated that in the bacteria genetic transferences can be produced from cell to cell away from all sexuality, which means that a genetic element transfers from one cell to another without coupling.

They have used coli-bacillus with two different characteristics for their experiments. In one lab pipe they have put male coli-bacillus with sexual factor F and in another female coli-bacillus.

After having mixed the contents of both tubes, they could test that the females (inverted in males) had gained or lost diverse properties, which meant that joint to the sexual character F of the first males that had gone to the females, other characters went to and these were independent of the sexual factor.

This demonstrates more than enough that our point of view of the Phages being autonomous genes and the genes, Phages controlled by the nuclear membrane, is true. For greater abundance, we achieved to demonstrate it experimentally and to interpret correctly the phenomenon, repeating experiences that were bad understood by Bordet and Ciuca, as we described in work XI.

Let's apply also these ideas to our concept of the carcinogenic progene and you will see that it is easily explainable that a gene that has been destroyed by physical or chemical action, recovers part of its enzymes by polar capture of other vitalized enzymes that come from the multiplicative dispersion or from the genic dispersion, by immunitary lysis, from bacteria, pathogenic or apathogenic fungus and agents in general, to which we called in the first works "mother forms of the virus of cancer", because we were sure that they gave something that intervened in the cellular cell cancer.

After all that has been explained in this one and all the previous works, Is there still anybody that has doubts about the reality of the mechanic of the progene of our artificial protoplasm: that we were able of cultivating virus in it and watch them in the ordinary microscope, that our energetic desoxirribo systems are a reality, of our point of view on bacteria-phagia, demonstrating that the Phages are autonomous genes and that the anticancer fight through specific antienzymetic vaccine therapy?

We have been precursors of these ideas and they are beginning to be understood when the rest is getting close to them. But we still will have to wait more until our ideas of the year 1952 about the spontaneous formation of vital units by the aggregation of vitalized enzymes enters into the mentality of the researchers of our epoch.

We will finish this first part of the job giving ideas for our "vitalist school or Biogenetic School" which we suggested in the previous work. They have to follow a clear orientation on the way to follow in order to reach the goal of creating life.

The mechanism that gives life is the following: "functional unit enzyme" at joining DNA, causes the "functional vitalized unit " or "vitalized enzyme". The grouping in a team of these units produces the "vital unit": virus, genes and Phages; and we already saw in work XIII that the association of genes produced collective and discontinuous life to the cells and the association of the last ones in big group produced vegetative collective and discontinuous life of superior beings.

In order to have this idea accepted we will have to wait a long time, may be more than the one we have left of life; but we know that other generations will accept it.

Here we have, then, the way open to perform the last assault to the creation of vital units, in other words, to create life:

1st. Vitalization of enzymes

2nd. Joining the necessary ones to form a complete team. This joining will produce a vital unit, a living being, starting from matters that lack totally own life.

Many procedures to make this come to our mind, but we do not have mediums for practically performing them. Maybe in some of the works that we still have not published we will give the pattern of these procedures.

That how did all this happen in nature? A cocktail vase label "Universe" was taken. They put inside it chains of hydrocarbonates coming from the hydrolysis of carburos, amoniac, nitrogen that also came from hydrolysis nitruros, sulphurs from the sulphats and minerals, oxygen, sodium, etc.. It was shaken during some millions of centuries and the Creator added his wish that this non animated matter organized itself.

And as it was His wish, life emerged.

The ones that only have destructive opinions, because it is easier to destroy than to create, maybe have the opinion that this work is excessive speculative, but we are going to demonstrate them that we speculate constructively and that the fact approximate almost exactly to the exposed ideas.

In proof of it, we are going to give a general pattern of the preparation of anti-virus vaccines based, precisely, on the ideas we have exposed in this work.

All of us know that virus are kept well through cold and through lyophilization, and that the closer we get, in their conservation, to the temperature of the cells of which they were parasites, the faster they are inactivated.

But we are going to analyse in what consists this inactivation, and, for a greater clearance, we are going to use a comparison.

We are going to consider a virus as a car battery, to which they are going to connect 60 lamps.

The battery with the lights on and without connection with the dynamo is a virus kept 37° outside the live cells, because it inactivates or unloads quickly.

A battery disconnected of the dynamo but with the lights off is a lyophilized virus or refrigerated because this way it keeps the virulence or loads for a long time.

A battery with the lights on but connected to the dynamo is a virus at 37° inside the live cell.

The bulbs are the pro-enzymatic "functional units" that the vital unit has, and the battery, an energetic load of its central nucleus of DNA, whose nucleotide elements are liberated and phosphorylated when it is needed, becoming energetic systems.

Established these concepts, we are going to give the pattern for the preparation of antiviral vaccine, for using mainly in emergency cases.

These cases are, for instance, a bacteriologic war, for preparing great quantities of vaccine when it is not possible to make a sufficient quantity by other means. Or in the case that being the morbidity as high as mortality we can not prepare anti-serums, in the case of the coming up of multiple variants of the same virus at the same time, and other slower procedures can become not efficient, or in the case of a virosis whose only possibility of fighting it demands a long period of adaptation to another animal species.

We are going to work, for our experience, for example, with the virus of the pig pest, and we will proceed the following way:

We take virulent blood and we add to it antibiotics to eliminate contaminations.

We put this blood in the culture stove at 38, 5° and after having passed 12 hours, we take 2cc and inject a pig.

When 24 hours have passed we do the same thing with another pig and we go on doing so each 12 hours.

The pigs that have been injected with blood of fewer hours of stay in the stove, die in an acute way.

We write down the number of hours of exposition to the stove that the blood injected to the last pig had. Let's be more acute: injecting 5 pigs more with blood sustained 2,4,6,8 and 10 hours less, for determining with more exactitude the number of necessary hours not to kill, but to produce a slight immune effect.

Once made the latter precise, inject a lot of ten pigs in order to find out the percentage per 10 possible deaths. If they are not produced, inject another lot of 100 pigs to find out the percentage per 100 of possible deaths. In case it is completely innocuous, it can be used as first dose. As second one, you can put another less inactivated blood,

and even as a third more active one, if we want to make the immunity stronger in a greater degree. The doses should be applied each 15 days.

This is a general procedure able to be used in almost all viruses.

We know many cases of abortive viric processes, in which sometimes the resistance of the guest plays a great role, but in other cases it is decisive the loss of virulence - maybe because of this same mechanism - of the etiologic agent.

There only rests, to make this vaccine practically usable, to take the blood or virulent tissues out of the stove at the exact time and to proceed right away to its freezing and lyophilization so that the inactivation point does not go on decreasing, which would cause the total loss of the immune power.

Why do things happen this way; the speculation gives it solved to us.

We have seen that when a virus goes into a live cell it spreads into "vitalized functional units" or "vitalized enzymes" - as we have baptized Schramm's "subunits", because this is the concept we have of them - and that these duplicate because they have enough elements for it.

But if we proceed to unload little by little their energy, in other words, the DNA, in other words, their battery, by forcing them to live outside the live cells at eugenesic temperature - with which they have no other way but to spend it - a moment will arrive in which the "vitalized enzymes" will need to load again before starting duplication, spending in this task more time the more unload they are.

When this time gives the necessary truce to organism so that it organizes its defences, the vitalized enzymes are destroyed by the antis of the serum, and so, they will not be able to get together again to form the virus.

When they are totally unloaded, they are not "vitalized enzymes" any more but only enzymes, that, because they have run out of their DNA, lack the capacity of multiplying and the antigenic power referred to the total virus.

If they have energetic load, but not enough to kill, as the virus is formed by vitalized enzymes, the acquisition of partial immunities against each of the ones that form part of the virus separately, will produce a global immunity against the virus by abortive infection.

VII. - THE MECHANIC OF CANCERIZATION.

January, 5th, 1961.

PREPARATION OF THE ANTICANCER VACCINES: CRITIC OF THE ANTICANCER TREATMENT BY "LISATE OF BOVINE HEART"

PREVIOUS CONCLUSIONS

In order to understand this work well, we need to remember that in the previous ones we have arrived to the following conclusions in what refers to the carcinogenic issue:

- 1.- The aggregation of enzymes coming from "fungus and bacteria donors of carcinogenic enzymes" to a partially destroyed gene - our progene - determines the look of the cancer cell, if the enzymes have certain qualities that we already specified.
- 2.- That the setting of a gene of these same bacteria or fungus among the components of a cromosomic cellular team, to where it is attracted by a twin gene to another totally destroyed, due to the appearance of polarity, carries also the cancerization of the cell.
- 3.- That the setting among the genes of the cromosomic team of a cell of a strange gene, although it does not substitutes any other destroyed one, nor it es attracted due to any polarity, but that is accepted by the cell voluntarily or forced, carries out also cancerization, when such a gene comes from some of the "agents donors of cancerigenic enzymes and genes".

In these three cases the impoverishing, toxic and invasive action of the tumouration will depend of the type of interferences that added enzymes produce in the metabolism of the invidual.

- 4.- That the loss of physical, chemical or mechanical selectivity of the nuclear membrane transforms the genic team controlled by the cell into a viric team on which this has lost the reproductive control, because of the transformation of the microairophil or anerobious medium characteristic of the nucleous into aerobious medium or because it lets pass the protoplasmatic coenzymes through.

This modification of the nuclear membrane can be produced by physical radiations of various kinds, by diverse chemical substances and also by mechanical irritative actions.

The tumours of this 4th group will be of big volume or will become of big volume because of their little general impoverishing and toxic action since they do not own enzymes strange to the cell.

- 5.- That in all the cases, except in 4th the supplying of enzymes is necessary or agents coming from outside whose common factors are being saprofite - except certain Streptomycetes - and mainly aerobious, but whose enzymes moved to the anaerobic

medium of the cellular nucleus and after a long adaptation to these circumstances, are the decisive factor of cancerization.

None of these tumours are transmissible in series and they have nothing to do with the purely viric of which we will occupy ourselves here.

STATISTICAL REASONS

The statistics of topographic presence of malign neoplasias in human organism gives us enough arguments to understand that these are precisely the factors of cancerization.

If the embryo theory was correct, we would have to admit that the embryonic cell would have to have a topographic distribution that is purely casual in the different individuals, since any zone, or region of our organism would be able to lodge such cells.

At making a statistic of the presence of cancer by regions we would find that there should be tumours of foot, leg, back, muscular masses, hips, etc. in the same proportion that of the mamma, larynx, prostate, lung, etc. because these organs are communicated to the exterior directly and they are in contact with abundant microbial flora.

It is also understandable that it is more cancerizable an hypochloridric stomach whose pH allows the colonization of germs than an hyperchloridric stomach whose pH excessively acid keeps an absolute microbial sterility.

The enzymes added to the progerm or the microbial genes can be of such diverse kind that we can consider the existence of numerous etiologic kinds of tumours, with extremely various biochemistry, malignity and possibilities of vaccine therapeutical treatment.

But inside this complexity the cancerization process can be well understood and we are going to reduce this study to a group of germs "donors of carcinogenic enzymes" so that it is clearer. Such enzymes, by their specific characteristic define the biochemistry of tumours produced by their genes or enzymes although almost all these microbial germs are "per se" totally harmless, since most of them are part of the normal ground flora.

For a long time we have met with a relative frequency in blood of cancer patients and in tumours of diverse kind a series of sporulated bacteria that we rejected systematically because they were not suspicious and also Nocardias, Streptomyces, certain yeasts and recently isolated micro aerophilic fungus.

One day, going through the *Traité de Bacteriologie* of E. Macé from the University of Nancy, printed in Paris in 1901 we found a reference that made us think in the intervention of such sporulated, aerobic bacillus in the process of cancerization.

The reference is the following: Scheurlen has isolated special bacteria, through culture of cancer tissues and he considers it the real pathogenic agent of the affection.

The cultures grow fastly on solidified ground and also on pathologic serosities of pleuresia, ascitis and hydrocele.

The tubes are sowed with fragments of tumours taken with all the aseptic precautions from autopsy and after surgical ablation when they are tumours operated in good conditions, before ulceration an preferently mamma tumours.

Taken them to the stove at 39°, from the 3rd day you can see how all the surface is covered by a non-color film, that wrinkles little by little and takes, after several days or weeks a greyish yellow colour, and on this film, small liquid drops.

These cultures are formed by bacilli that are one and a half to two and a half micra long by half wide and they are animated by slow movements of oscillation, presenting many of them brilliant, elypsoidal spores.

The bacillus are easily coloured but when the Gram Method is used and they are treated with alcohol, they decolourate partially staying only coloured at the extremes.

The spores of these bacilli, says Scheurlen, are the ones that are found through microscopic exam in the cancerous juice, while the bacilli have not been observed.

The culture on serum can grow throw resowing on gelose, in which they form, after 12 hours at 39°, a colourless film, brilliant and fisurated, constituted only by bacillus, because the spores do not appear until after the 12 hours.

The sowing of fragments of tumors directly on gelose gives, almost always, negative results, because Scheurlen only has obtained it six times of seventy different sows.

On potatoe and by resowing, this bacterium forms, after 12 to 24 hours, a yellowish white film that extends on the entire surface.

In the ordinary culture medium and also by resowing, a yellowish white superficial pleited film that extends on the entire surface is formed.

The inoculation of the products of the cultures has never given out well demonstrative results. The bitches that had received injections in the mammal glands presented at the zone of the inoculation small soft tumors of the size of a peach to a nut, and in such tissues the bacillus of the culture could be tested.

Basing himself in these results, which he judged slightly positive, he considered the bacteria isolated by him as the real etiological factor of cancer.

He said that the study of this issue had to be reproduced and deepened and he considered curious the fact that an organism that vegetated with such a speed in the cultures, evolutioned so slowly in the human organism and determined an affection of

enlonged lasting, because it seems that due to its vitality and fast multiplication it should cause a fast an acute march.

Domnigo Freire confirmed these results obtained by Scheurlen and claim to him the priority right.

For other observers, the bacillus of Scheurlen was only a saprofite specie of the air and the ground, classifying it in the group of the bacillus of the potatoe, which, as we are seeing, was a new confirmation of the results.

STUDY OF THE MECHANIC OF CANCERIZATION BY SPORULATED

AEROBIOUS BACILLUS

All the description of Scheurlen has a coincidence with numerous sporulated aerobious saprofite germs, sistematically isolated by us - that are a wide group of which we can consider a type the subtilis bacillus - when we have started from blood cultures of cancer patients and tumours in appropriated mediums, because it is almost impossible to obtain them directly by sowing in ordinary means.

This difficulty of direct isolation in ordinary means of culture demonstrates that the staying of their spores inside the live organisms produces them a mutation, in an heterotrophic sense, since when they come from the environment they vegetate in very simple means. This seems to demonstrate that these spores work according to two different forms:

1st In the exterior medium they dehydrate almost totally, isolating and cancelling totally the metabolic interchanges.

2nd Inside the tissues they live in a minor grade of de-hidratation and they hold a more or less precarious metabolism through the sporular membrane which they keep, because being this different to the organic defences, it is a way of not being attacked by them.

Because of this circumstance they do not pass to the vegetative form, because this one indeed is attacked.

These spores adapted to the intraorganic life are far less resistant to heat and far more heterotroph.

In this last state they can determine at a long term certain chronic fibrosis as a direct consequence of the metabolic interchange that they develop inside the parasited tissues, but through direct action - by giving up genes or enzymes - they determine neoplasias.

It was very difficult that Scheurlen and Domingos Freire could explain at that epoch the mechanism of cancerization followed by these germs, extensively explained by us.

At doing a thorough study of this type of bacteria we find the following circumstances:

Wissokiwitsch observed in 1886 that injecting spores of the subtilis bacillus in the veins of animals, they fixed in the liver and spleen of them and that they could be isolated from these organs several months later without the mentioned viscera having suffered any type of lesion because of their presence.

We already have, therefore, germs that can live a long time in a completely harmless way inside our tissues. They can stay so much time in sporular form, without multiplying and holding a precarious metabolism that the organism can slowly create a state of resistance or immunity against them being born by induction in the genes of the spore a wish of spreading that makes them become autonomous genes which can give up "vitalized enzymes" to a cellular progene or they themselves become a cellular gene like the others.

But there are biochemical reasons also that establish a parallelism between these germs and their genes and enzymes and the malign neoplasias, which comes to demonstrate in another area that our appreciations are true.

To understand well this parallelism, we have to remember that we said in our first works that the virus have the same tissular tropisms and exalted pathogenic activity than the ones of the bacteria that have originated them by enzymatic cession.

We can also say that the rebuilt progene or the gene located to the cromosomic equipment of the cancer cell have to have the same characteristics in their biochemical performance as the bacteria or fungus that has facilitated the reconstruction of the progene, or that has given up a complete gene to the tumoural cell and, therefore, it is of great interest to be able to prove that there is a perfect identity between the tumour and the germs of this group.

Petry, Wolf and Beebe found in the neoplastic tissues less albumine and more amount of incoagulable proteins than in the normal tissue.

Loeffler finds that the mesentericus bacillus, or of potatoes, can not live in mediums that contain exclusively carbon hydrates, but it needs the presence of a certain quantity of albuinoidea matter and that they quickly dissolve the egg albumine.

We see then how certain proteolytic enzymes of these germs can attack - once added to the cellular progene - the protean structures of the neoplastic cells, decreasing the proportion of albumine and increasing, by degradation of these, the quantity of soluble proteins.

Another circumstance in which we agree completely is the high glucolytic power of the tumours, having been observed by Fulce in 1910 and Saiki in 1911, while Warburg, Nagelin and Possener in 1927 observed that in the Ringer serum and the blood one all the proliferant cells owned the characteristic of unfold the dextrose in lactic acid.

In normal conditions the breathing has this product by oxidation, but in tumours it is too poor, and the lactic acid accumulates, resulting that the high contents of lactic acid of the neoplasias is greatly the result of a lack of oxidation.

Establishing the parallelism we will quote an observation in Vandebelde in 1884 who proved that taking away part of the oxygen to a culture of *Subtilis bacillus*, and making after a careful exam of a well defined mean of composition, where the bacteria had vegetated enough time one found that glicerine and sugar had been consumed and in their place lactic acid and trace of fatty acids were found.

These same microaerophils conditions are produced inside the cellular nucleus where the union of the vitalized enzymes of

these germs with the progene has taken place, or where a complete gene of them works, because we know through biochemistry that the nucleus lacks the enzymes of the cellular oxidation and, consequently, in it there is no breathing and when glucolysis is produced in anaerobic conditions, the reduced DNP that is produced in the passing of phospho-glicer-aldehyd to phosphoglyceric does not oxidate through the respiratory chain and in its place acts on the piruvic acid reducing it to lactic.

This reaction comes catalysed by the lacti-codes-hydrogenase and it is a reaction that is produced in tissues when there is not enough oxygen flow.

We see, therefore, that if the intensive glucolytic enzymes of the germs of the group *Subtilis* work added to the carcinogenic progene, which works inside the nucleus in an anaerobious environment, the cancer cell conditioned to the biochemistry of these strange enzymes has to create an intense glucolysis with a great production of lactic acid.

But this parallelism goes on further because we know that the normal albuminas are formed by levogiro (levoturn) aminoacids.

However, Beard in 1911 indicated that the albumines of the cancerous tissue were formed by dextrogiro aminoacids.

Later, Kogl has also described the dextrogiro character of the cancerous proteins because; it seems he did not have knowledge of Beard's observations.

This issue has thoroughly been studied by Obdulio Fernández. Let's look to the other parallel:

The Dextro-aminoacids are rarely found in natural products, but in these few rare cases and maybe the only ones, we can indicate the following: The D-Glutamic acid is found in the capsule of the Anthrasis *Bacillus* and others similar to it. In other words, it is synthetized by sporulated aerobious bacillus.

The Dextro-poline appears in the hydrolisis of the ergotinine which is elaborated by the microscopic fungus *Claviceps purpurea*.

The Dextro-leucine, Dextro-valine and Dextro-phenylalanine that are found in the Gramicidine, antibiotic decapeptide synthesized by kinds of sporulated aerobic bacillus from the ground, the bacillus brevis.

The Dextro-phenylalanine, Dextro-ornithine, D-aspartic and D-glutamic in the Bacitracin A of diverse strains of licheniformis bacillus.

Do you need that I go more profoundly in this matter? Do it yourself because we are orphans of mediums.

Get cultures of a bacteria of the Scheurlein group, isolated from a tumoural process, separate the veil; hydrolyse and determine the presence of such dextrogiro aminoacids.

If there are not any, you already have a base to start a refutation of our arguments, but if they exist you will have helped humanity, co-helping us in order to be heard.

We have seen in the previous lines how enzymatic biochemistry of the germs of the group subtilis, and also of the other bacteria and fungus "donors of enzymes to the cancerous cell, is the same as the biochemistry of the malign neoplasias.

If we add to these reasonings the observations of Scheurlen, Freire and ours, and, we establish a cause - effect relation with the clinical results obtained in the employment of antineoplastic vaccines elaborated with germs of this group - although they have been elaborated with elemental techniques because we have not been able to have the necessary equipment for its correct elaboration - we have to arrive to the conclusion that the mechanic of cancerization and all the circumstances that surround it, studied accurately in all its extension and profoundness in these sixteen published works, allow us to conclude that we have arrived to the end.

In consequence, we delegate the mechanic of the preparation of anticancer vaccines to any laboratory that has means for it, because we give to the human community this specie of testament, our techniques and ideas that no one will be able to use in own benefit. With this purpose we are giving the necessary techniques.

TECHNIC OF PREPARATION OF ANTICANCER VACCINES

During a long time, and with the purpose of confirming clinically what the experimental conclusions were demonstrating us, we prepared an anticancer vaccine with the different microbial strains that we were isolating.

During nearly a year we treated indirectly, through doctors, around 80 persons who were, in their majority, in the most advanced state.

The conclusions were:

1st - That the types of vaccines prepared with yeasts, diplococcus and diverse types of fungus isolated with all warranty of blood of ill persons did not produce improvement

of any class, and that in very few cases increased the painful reactions in the tumoural focuses. In other individuals the pain decreased visibly.

2nd - That the vaccines prepared with enzymatic fractions of sporulated aerobic bacillus, and in less proportion the ones prepared with enzymatic fractions of Streptomyces, eliminated almost totally the pain until the point of being able to eliminate completely the administration of opiaceous and morphine to which they submitted.

That with this type of vaccine we obtained complete reestablishment in 17 grave individuals and spectacular improvements in another great number of cases.

That the reestablishment was a 20 percent and that all the individuals that recovered health are in a perfect state two years later.

That we have the medical documentation that demonstrates these facts.

We also arrived to the conclusion that, being true that the vaccine worked magnificently at the first doses, it stopped being effective further on.

This circumstance was due to the fact that it was packed in flasks of around 20 doses and the flask was, at the beginning, completely full, but in the process of being emptied while the doses were being applied, there was more air inside it.

From this circumstance we draw the conclusion that the enzymes, at oxidating, lost specificity and that the vaccines had to be prepared in a microaerophil environment and pack them away from the contact of the air, and also that they had to be filled in full ampoules for only one dose.

These extremes can be proved by the different laboratories that start preparing it and we have the security that, elaborated correctly, thing that we have not been able to do, a great number of cures will be made.

ISOLATION OF STRAINS

We proceed to the systematic isolation of all class of germs existent in blood of cancer patients and in malign tumours separated by surgical ablation.

You have to take into account that the agents to be isolated can have disappeared from the individual after giving up the carcinogenic enzymes and, therefore, there are many cases in which the isolation is negative.

Taking into account these circumstances, we sow blood, or pieces of tumour in two different types of isolation:

Liquid medium, composed by ordinary medium added with sacarose and a pill of multibionta mineral "Merck" by litter. For each new ml of this medium we add 1 ml of defibrinated blood of the patient that serves to make the sow and, at the same time,

to supply to the medium the termolabil factors, because this medium is sterilized through autoclave.

Solid medium composed by meat, thinly ground, one part; grated bread or mashed potatoes, two parts. You mix well and the liquid medium of equal composition of the above until you make a very fluid paste.

You put this in Erlemmeyer matrass and you sterilize it in the sterilizer with which the medium solidifies. You put in each tube more or less a cm of this medium.

To sow, you water the blood on the entire surface of the medium; at the rate of 2 ml for each square dm.

Both mediums are taken to the stove at 37°C where they are hold, not giving them as negative until the 20 days approximately.

The outside neck of the tube and the inside hood can be brushed with iodine tincture in order to avoid the penetration of micelios of fungus from environment stick to the crystal.

In case there are, in the blood of the patient, spores of sporulated aerobious bacillus, the result will be positive in two days to a week and we do not have to explain the characteristics because they are the same that were described by Scheurlen. Streptomyces also appear with quite less frequence in the form of colonies of a very stick together consistency, difficult to separate. In the solid mediums that have been watered with blood on their surface numerous colonies appear at the 8 to 10 days and they, when they grow form together a kind of lawn and as the apparition of isolated colonies is simultaneous, they demonstrate they were in a great number in the sown blood, because each vital element gives place to a colony, which eliminate the suspicion of a contamination.

These Streptomices mutate spontaneously to ocardias and to aerobic sporulated bacillus and these circumstances were explained in the first works.

Of the Scheurlen type of bacillus there are varied forms, some of them are long and not mobile, some other are long and with movement of advance when the chains are lose, being most frequent to find bacillus joint at two, without separating.

Froma the blood of the laeukemia we have isolated a characteristic gemant pseudoyeast that has a very brilliant surface in the four times we have had the occasion of sowing blood of these cases.

Besides them, that are the characteristics, we have found numerous fungus not frequent in the environment and also diverse yeasts, and we say that they are not frequent because we know all the environmental fungus of our laboratory, since we have left many times petri plaques open with these mediums and we have studied all the types of them.

Once a collection of these "donors agents of carcinogenic enzymes" is obtained and even a statistical frequency of presentation and a study of the different types, we already have the matter to start the vaccine.

As the aerobious sporulated germs are abundant in the environment and they are resistant to boiling water, the extraction of blood done with syringes that are simply boiled will not be a worth. They will have to be perfectly sterilised.

In order to make a lot it will be convenient to reduce at the beginning and as long as we do not have a wider experience to operate with aerobious sporulated bacillus from the different isolated strains and also with streptomyces, ocardias, brilliant and gemant pseudoyeasts without any visible structure because they are the only ones that give vaccines of a certain antigenic power and do not produce painful hypersensitivity reactions.

It is convenient to have strains of these germs adapted to microaerophil conditions in order to do from them the sowing in the flasks with which the commercial vaccine is going to be prepared. This can be done in big bacteriology tubes full at three quarters with the solid medium described before and closed with a strong rubber tampon.

After that, you only need to sow the necessary flasks with different strains of isolated germs with all kinds of warranty.

These flasks are filled with the solid medium but keeping it semifluid, adding a greater quantity of liquid medium.

This semifluid medium should be sterilised by tyndalization and to add to it before a 5% of hemoglobine or a 10% of fresh blood.

After doing the inoculation, preferently from microaerophil cultures, you put a sterilised rubber tampon to the flask and shake it so that the inocule is spread to all the mass and you take it the stove at 37° C.

It has to be shaken each day so that the culture is done throughout all the mass and most of it cultures in anaerobious conditions.

The flasks will be held for twenty days to two months, depending on the type of germs that are inside or until you see a clear hydrolisis of the matters of the semifluid medium.

After you add boiled water and cooled to one or two grades in order to fluidificate it and be able to filtrate through paper. The water must be boiled to throw away the oxygen that has dissolved inside and it must be used cold because this way the enzymatic protein is taken with.

For the paper filtrating, that must be done quickly or in inert atmosphere, you add a small amount of bisulphite as antioxidant.

You filtrate again through sterilised plaque and you put it in vials, or in ampoules of one dose, you freeze it and lyophilize it. It must stay with an absolute vacuum.

If you do not have a lyophilizer they have to be kept in ampoules of one dose, almost full.

The treatment is started with relatively small doses and it is increased little by little until a slight feverish reaction is produced; in that moment the dose is stabilized.

The subcutaneous via is preferred and the treatment is held the necessary time.

The mechanism of action of the vaccine consists in that as among all the enzymes of these agents collected in the culture are the ones that have added themselves to the progene, when certain immunity to the strange enzymatic protein is established, this is eliminated by the organism, ceasing the carcinogenic action.

CRITIC TO THE ANTICANCER TREATMENT THROUGH "BOVINE HEART LISATE"

It is curious that all this that we have been solving, getting to explain the mechanics of cancerization in the smallest details, has maybe been solved by the Uruguayan pharmacist Federico Díaz.

After finishing this work a newspaper from Madrid has arrived to us that tells us that this investigator had bought two young dogs and that the shop advised him to give them bovine heart in an earthy place.

The dogs buried some of these hearts and, after a time, they ate it.

The press does not say what the illness was, but we suppose that the investigator must have drawn the conclusion that the dogs acted instinctively in order to get a medication for the disease and this observation was used after to start the following works.

If we analyse this fact, we must say that the base of the work was bad established, because the dogs bury the food only when they have had enough so that they can have it afterwards when they are hungry and, above all, when there are more dogs and they are afraid those could take the food away. They almost never remember where they have hidden it, curiously.

We know that dogs bred on cement grounds suffer frequently from deficiency illnesses and among little pigs and sucking pigs it is frequently to see this too.

Most of these deficiencies are avoided breeding them at the open country or in earth breeders or putting earth in cement breeders, because from them the little pigs take the oligo elements whose lack produced their deficiencies.

If you give to little dogs the protean food raw, that also has blood which is corrector of ferropernic anemias - case of the bovine heart - they move around the earth with it and

eat some earth and this gives us enough reasons to believe that only with this the dogs were cured.

But being or not the starting point well established, he started investigating this fact putting pieces of bovine heart on the earth and, after, at different levels of profoundness. He left them there for a few days and unburied them after in order to analyze the possible chemical modifications that had taken place.

The first test of this investigator was that at different levels, the unfolding of the substances was different too.

In a second stage he determined the ground flora at different levels, making cultures and obtaining samples.

This way he observed that at determined levels of profoundness the cultures accelerated or broke the development of the cultures, finding out the relation between the levels of profoundness and the modifications of the microorganisms for which he took out the gases at different levels of profoundness.

He studied them and started to make the process of the determinant factor of the modifications. To this procedure he gave the name of lisate and in this case in particular "lisate of bovine heart".

Until now you will be thinking in which this is similar to what we have explained and we are going to demonstrate you that it is only an empiric form of developing what we along the time have been demonstrating and explaining.

In the earth we found abundant hay bacillus, of the potato and numerous more of the group of the aerobious sporulated bacillus, generally linked to the unfolding of the polisacarides.

Meat is used as a medium of culture and inside the bovine heart -or of any other- the enzymes that have adapted themselves to live in the same conditions that these enzymes have, stay; when they work added to the progenes or carcinogenic genes in the cellular nucleus.

If we now make an extract of meat in a lysis state, in this extract go the carcinogenic enzymes given away by the dominant flora of the enzymes and carcinogenic genes in order to perform in the piece of meat their anaerobious proteolysis and glucosis and if we have the procedure to separate them, the better.

There is a fundamental difference between the procedure of the uruguayan pharmacist and ours and it is that ours is perfectly correct as long as what refers to specificity and has been established as a consequence of a perfect knowledge of the causes of cancerization while the one of the uruguayan pharmacist started from an empiric observation that was badly established and in the elaboration of the vaccine, or drug, as he calls it, intervenes a competitive flora that is not useful and that decreases the specificity.

This is our opinion in relation to what we have read in the press and we congratulate this investigator for having reached (of this we are absolutely sure unless things have happened as we think) to a similar result, through a completely different way.

Now, if what he calls drug, does not act through vaccinating action - because it is not an extract of the enzymes left in the heart of the bovine by the ground flora - we forecast another sad failure, because we have already seen in previous works there will never be found a drug or a medicament of any type that acts selectively on virus or strange added genes and does not act on the treated individual's own genes with such drug or medicament.

Is there a medicament that attacks the virus of polio, smallpox, pig pest, etc and is not lethal to the host cells?

No, there is not and there will not be one, as there will not be either possibilities of treating a cancerous process through chemotherapy.

VIII. - NEW ORIENTATIONS IN CANCEROLOGY

January 20th 1959 - by Fernando Chacón Mejías

THE FOUR FACTORS NECESSARY FOR CANCERIZATION - February 20th 1961

We have seen before that in the four following cases there is a game of transferences, induced by the appearance of the illness:

- a) In the spontaneous formation of the virus.
- b) In the appearance of bacteria with antigene Vi due to the recuperation by avirulent origin of the "vitalized enzymes" belonging previously to a virulent origen, but now coming from the spreading of the "xvitalized enzymes" of a virus.
- c) Acceptance of "vitalized enzymes" or genes of microbial agents by a somatic human or animal cell.

This immunity is produced:

- a) Against bacteria whose genes, at spreading themselves as "vitalized enzymes" can rebuild, by joining among themselves, a virus of a different composition to the one of the diverse genes of the bacteria that have contributed to form it and that shows appearance if it is patogenic.

This is the case of getting together of pigs of different origin, in which each lot supplies different immune induction, being established, then, one among them and an interchange of bacterial enzymes. This causes the formation of the virus of the pig pest in zones in which the disease is enzootic, where all the bacteria necessary to form it are. This is possible to meet demonstrated.

- b) Against a virus, that at being attacked when immunity against it appears, spreads its "vitalized enzymes", that are not able to rejoin themselves, because they would be destroyed, and they get shelter in the bacteria from which they came from. If they do not find them, denouncing this fact in an avirulent bacterium it recovers its Vi antigene, because the virulence reappears.

This is the case of the re-aparition of the porcine salmonella, occurring this at the same time of a potent antipest immunity. This also can be demonstrated experimentally.

- c) Against germs that are "donor of cancerigen enzymes" to the vegetative cells of the human beings mainly - we will see why later - that, at being induced by immunity, carry out a cession effect.

We are interested here in showing in detail the oncologic aspect only and, we are going to study in which the biochemical and clinical effects are.

The micro organisms "donors of carcinogenic enzymes" to the somatic cell of a superior being are found in a great percentage in healthy individual, even in their blood and tissue, since because the majority of them are sporulated, they resist the boiling of our food, and in a mashed potatoes dish we ingest a great quantity of them.

If they get into our tissue - and many of them do - they stay in an inactive and sporular state and neither they attack nor are they attacked. But when time passes, defences against them can be produced and they are induced, then. So, they spread their "vitalized enzymes" and their genes.

This is why they are not isolated from cancer patients in many occasions since these patients report ill when they have defences against them, which drives to their elimination and destruction, not before having done the transference of genes of the bacteria to a polarized cell of the patient.

In the immense majority of the patients this polarization of the cell of the individual is an obliged factor of cancerization and it is the decisive so that the gene of the lysate bacteria, polarized also as a consequence of the spreading of the genic equipment, copulates with it.

Of all we have explained until now we see that in order that cancer appears three conditions are necessary; but there still is a fourth one that will be evident along the rest of the work.

- 1) Polarization of a somatic cell of a superior being because of lesion of his genic equipment.
- 2) Near presence of germs that can transfer him genes or "vitalized enzymes".
- 3) That these germs feel obliged to spread their genes or enzymes by immune induction.
- 4) Lack individual, or at least scarce dextro-amino-oxidases.

If there is no immune action, there is no spreading of the "vitalized enzymes" by the bacteria, nor polarized genes and if there is, but there is no polarized cell in the individual, there is no cancerization.

But, besides, as we will see in the lines ahead, even though there are polarized cells and enzymes and genes that are polarized, there is not cancerization either if the individual has enough dextro-amino-oxidases.

Because it is difficult that these four circumstances occur in the same individual, cancer does not have a greater frequency.

Each individual creates his own making these four conditions concur. And these are such specific factors of each cancer patient, that there are very few possibilities of

transmission of cancer, since there many germs that can produce it and many types of induction can exist.

Now well, if one of these factors is massively produced in a human population - case of the inhabitants of Hiroshima and Nagasaki in which the physical radiation has determined the appearance in almost all the inhabitants with lesions in somatic cells in their cromosomic equipments with the subsequent apparition of the polarity in them - then the apparition of neoplasias increases in the sense of the increase of neoplastic processes.

Tobacco, smoke, the smoke of the buses and other causes so many times brought and taken, only change the statistical of the tumours to their favour, because they have an influence on one of the factors: the chemical lesion of the cromosomic equipment of the cells on which the act: lip and larynx of the smoker and lung of the one that breathes the smokes of buses. Now it is also necessary that the other three factors concur negatively for the health of the individual for the cancer to appear.

And more: once the adding of the "vitalized enzymes ", or genes of germs to the cell has been produced , there is the need of a long period of being latent, until the enzymes or genes of the aerobious germs adapt themselves to the anaerobious nucleus.

ACTION OF THE CANCER ON THE BIOCHEMISTRY AND THE PHISIOLOGY OF THE CANCER PATIENT

Ewing says that "our current knowledge, due to a careful clinical study, to the necropsic observation and to chemical investigation seem to confirm that there is no peculiar toxine secreted by the neoplastic cells that drives to cachexia.

This opinion, at the moment, requires no revision at all, at the light of the different chemical analysis of the cancerous tissue (Petry, Wolff, Shaffer) because the existence of any new toxic oar abnormal new substance has not been demonstrated in the cancerous tissue, although quantitative variations can exist in their des-integration products.(Warburg)

According to this we are going to explain now what series of biochemical and phisiological phenomena drive to the cancer patient to cachesia and death.

At the degradation of glucides and lipids and their combustion into carbonic anhidrid, the energy free of these compounds is lost, partially as heat, but partially is retained under the form of rich energy compounds, mainly as ATP.

There are two kinds of energetic phosphorilations: sustractive phosphorilation, in which the sustrat is dehydrogenized at the time an energetic connector appears; and, oxidative phosphorilation, done while the oxidation along the respiratory chain takes place.

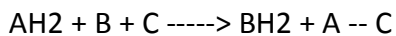
Both types of phosphorylations complement, and we know that the maximum of production of ATP molecules is of 3 molecules by O₂ consumed, and they are formed at the series of processes that take place when the reduced TPN turns into oxidated TPN.

In the step from TPN to cytochrome "c" one or more molecules of ATP are formed and in the step from cytochrome "c" to O₂, another molecule is formed.

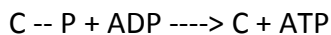
The way the substrate threads with the different coenzymes is supposed to be made with the help of a third element or "dealer", the following way:

$AH_2 + B + C \rightarrow BH_2 + A - C$ where AH₂ is the reduced substrate, B, the coenzyme and C the third element, "or dealer".

This oxidated substrate does not remain free (A) but, really, it gives a compound with a connector rich in energy at joining the "dealer":



This compound A - C, at the presence of an inorganic phosphate, gives $A - C + P \rightarrow A + C - P$ and this compound C - P transfers in the energetic phosphorus the ADP.



Remaining, again, the third element, or "dealer" (C) at disposition of getting into the oxidation of another substrate again.

This way the organism stocks available energy for numerous metabolic tasks, using it when it is necessary.

dealer" (C) in this process and if its concentration in the medium is bigger than the one of (C), they are able of substitute it in its functions according to the following equation:

OH OH

A-



This way (C) stays unable of performing its dealer function, and, in consequence, the ATP does not get to form.

As, the energetic compound A dinitrophenol is very labile, it hydrolyzes easily into its two components, liberating the stocked energy under the form of heat, that gets lost.

The organism, then, tends to breath more, to compensate the formation of molecules of ATP, spending quicker the stocks of the substrate.

In a similar can the action of the tiroxine in the human metabolism be explained, because this has a constitution that is similar to dinitrophenol, since in the hepertiroid individuals the excess of tiroxine produced motivates the fast consumption of alimentary stocks.

We have said that among the substances that act in competition with the "dealer" (C) are the peptidic antibiotics like the bacitracine and at the previous work we saw that the bacitracine is a polipeptidic chain that contains the aminoacids dextrophenilalanine, dextroornitine, dextroaspartic and dextroglutamic.

We can affirm that is due to the presence of these optic isomeros of the normal aminoacids in the molecule of bacitracine its competitive action with the "dealer " (C), because no other polipeptidic chain formed by levo aminoacids only establishes interference with (C).

We know that neither human cell nor animal cell has dextrogiroaminoacids among its proteins and we can affirm that a dextrogiroaminoacid can not be synthesized by any cell without the latter having a specific enzyme that catalyzes its synthesis.

Neither can they enter as a consequence of the digestive demolition of the food proteins, because no food has them.

But the cancer cell has them - this is demonstrated - and if they exist in it, it is because it has enzymes able to synthesize them.

But as in Nature, only these patients own the denounced germs by us as "donors of enzymes", we have to conclude necessarily that only from these germs , at transferring their enzymes elaborators of dextrogiroaminoacids, can the cancerous cells have taken the enzymes with which they catalyze the "manufacture" of theirs. With which the theorem of cancer is demonstrated according to all our predictions and experimental works.

Being true that bacitracine acts competitively with the "dealer" (C) due to the dextrogiroaminoacids of its peptidic chain, it is also true that the dextrogiroproteins of the cancerous cell can act the same way.

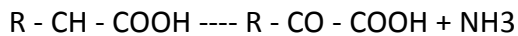
This carries out, as a consequence, that almost all energy of the phosporilated compound - like ATP - is intercepted by the tumoural mass, with which it has available an enormous accumulated energy, while the individual is being cachesiaded because he can not accumulate it for his metabolic tasks and he finds himself in the situation of burning the substrate, without possibilities of retaining energy.

The cancerous becomes phisiologically - the simile is worthy - an hyper tiroideal at a maximum grade and the tumoural mass acts as a nefast endocrine gland that the more it grows, the less energetic stocks leaves to the individual. We see then, how the cancer cell does not need to elaborate any toxic substance for determining the cachesia and drive to death.

But, there are more circumstances to infer in order to exhaust the theme of cancer.

Among the procedures the organism has for the catabolism of aminoacids is the oxidative desamination, through which the tissues can desaminate the aminoacids turning them into cetonic acids at the presence of specific enzymes and O₂ and, according to the reaction:

1/2 O₂



NH₂

The enzymes that catalize this reaction are the levo-amino-oxidases and the dextro-amino-oxidases.

The role of these last ones is not explained by Biochemistry, because the natural aminoacids are, in general, of the levo series.

We are going to explain the mission of these dextro-amino-oxidases.

We have said that man takes spores with his food, because these resist boiling; but before inventing the fire and adopting hygienic sanitary ways, he took many more and, in order to protect himself of the passing of these spores - although this passing is done inactively - he had to have gifted of many dextro-amino-oxidases for des - integration the dextrogiro proteins of these germs.

This is the only viable explanation of the presence in the organism of the dextro-amino-oxidases, and, then, we will be much less protected against cancer.

This is why it is possible that because of this it is the civilization disease and it would be interesting to study the increase of the cases of cancer in relation with the increase of the users of the express cooking instruments.

It is possible that immunity against cancer lies in that some individuals have a good reserve of dextro-amino-oxidases, that at des activating the proteins of the carcinogenic agents, eliminate the danger of copulation of their enzymes with their somatic cells.

These affirmations are not made uselessly, because the ram has dextro-amino-oxidase in its kidney, which has been very well studied, and it is found in it in quite a great quantity, being a flavoprotein with FDA.

It is little specific and desaminates all the aminoacids of the dextro series, but the dextro-glutamic acid, being inactive for the aminoacids of the levo series.

But that the ram has many dextroamino-oxidases is explained, because it is the animal that takes the grass out more from the root and eats where the other animals die of hunger, literally scratching the ground with the mouth to pin wisp of grass and taking,

at the same time, dust and earth fragments loaded with sporulated aerobious germs. It is so that in order to affirm that a ground is wasteland it is said: "Not even sheep eat there".

It is natural that they have a mechanism to inactivate the spores of the germs that can pass to their interior in a great quantity, mostly when they use them as auxiliars of digestion because in their paunch of these ruminants and in the digestive process of the rest of the stomachs they are used to hydrolize cellulose, because these animals lack digestive ferments able to hydrolize them.

In consequence, they can inactivate the enzymes and the genes of this spore if they get to lisate by oxidative desamination through a strong dextroamino-oxidasa equipment.

This is why the bacillus anthracis is the only one able to develop in the tissues of the ovids in a vegetative form - of the sporulated bacillus, of course - while the others have to remain in a sporulated form.

Although these spores were immune induced to desintegrate and they spread their genes and "vitalized enzymes" , as the proteins of these are dextrogiras,(dextro-turn) they would be destroyed by the dextro-amino- oxidase before they could get to copulate with any cell and, therefore there is no cancerization.

Of all these circumstances we can deduce that the action of our anticancer vaccine - that will be explained more in detail in a later work - because at injecting in parental injection, the enzymes of this carcinogenic flora we excite the production of dextro-amino-oxidasa and antienzymetic immunity against cancer appears.

We do not get this by injecting isolated dextrogiroaminoacids, because it is precisely the global structure of the enzymatic carcinogenic protein the one that, acting as antigene, determines the apparition of defensive gamma immuno-globulines, that hydrolize them, acting the dextro-amino-oxidase after or at the same time in order to finish the catabolisis.

The matter is clear, because if it is true that we achieve immunity against many germs, using filtrated lisates from them, it is also true that we do not obtain it with the resultant products of the protein hydrolisis of those filtrates.

It is ease to deduce, this way, that having the animals kept, because of their type of food has dextro-amino-oxidases higher than that of man, is the classic cancer, not transmissible, deadly for man.

This is why we set our investigation of persons, instead of doing it on animals and it was because we were convinced that this was the only way of achieving to something practical. This way we bravely faced all the responsibilities that could fall on us, that on paper were not few, in spite of being working with harmless products.

It only rests to us to put ourselves at the service of any laboratory in order to clear any doubt that rises in the preparation of the anticancer vaccine and we hope that, for the benefit of everybody, the magnificent preparation of microbiologists and biochemist of the whole world makes a perfect vaccine that solves definitively the, until now, horrible problem and frees all humans of the most horrible of the tributes.

We will go on progressing in order to be able to follow helping all in this huge enterprise.

THE MECHANISM OF ARTIFICIAL ANTIENZYMATIC IMMUNITY IN CANCER

March, 20th, 1961

In order to get to produce artificial antienzymatic immunity in cancer we have to examine, in the first place, the antigenic matter on which we have to act and determine after the different phases of specificity through which it passes.

The carcinogenic matter that we have to inactivate and destroy by vaccine therapeutic action has already been defined in previous works, being, as we saw, enzymatic proteins that come from determined bacterial germs that are transferred as a consequence of the lytic dispersion of these to polarized cells of the guest individual.

But we have to define this matter taking into account its antigenic structure and, for this, we have to take into account the following circumstances:

- 1) That an enzyme is a protean globule sent by cellular genes, at least outside - or exoenzymes - , or to the cellular cytoplasm - or endoenzymes - with the objective of catalyzing the multiple metabolic functions that are necessary for the life of these.
- 2) That a vitalized enzyme is not a product of the emission of the genes but the result of the multiplicative dispersion of them.

There are multiple differences between normal enzymes and "vitalized enzymes" and, among them, the following:

The normal enzymes perform only actions of catalytic kind and are formed by protein, fundamentally.

"The vitalized enzymes" have the capacity of automultiplication and are formed, besides the enzymatic protein, by a certain quantity of DNA, where the multiplicative capacity comes from.

From this difference emergence another one of immunologic type, because if it is true that the protein of a normal enzyme is the same as the one of the "vitalized enzyme" that formed it, the coupling of the latter to such protein to the DNA makes it modify its specific condition as an antigen and, therefore, we will never be able to destroy a "vitalized enzyme" through the immunity provoked by the vaccines prepared by normal enzymes.

We are going to understand this with the following example:

When a typhic gets immunity against the Eberth bacillus, the antibodies formed act against all the normal enzymes of that bacterium, and also against all its structural proteins, but not against the "vitalized enzymes", that grouped in colectivities, form the genes or germinal matter of such bacterial cell.

As a consequence of this different kind of acting of the antibodies, the bacterial cell is lised, while the genes the bacteria get free, becoming each of them an autonomous vital unit".

But the antibacterial immunity does not determine the destruction of the genic equipment of the bacteria, and the antiviric immunity does determine the lysis of the "vitalized enzymes", individually or as a whole, and, therefore, acts against the autonomous "vital units."

This performance in two senses of the organic defences make the appearance of Phages, on one hand and, on the other, the transmission of "vitalized enzymes " , of Phages, or virus, to bacterial cells in which mutations in their virulence and in their biological and metabolic characteristics are produced.

As the cancerization of a cell is due to the transference of "vitalized enzymes" or genes of a microorganism to such cell it follows that it is against such "vitalized enzymes" or genes that we have to act, and that the anticancer vaccine has to be prepared against them.

For this we can follow to procedures:

- 1) Lysis of the genes "donors of carcinogenic enzymes" by ´ ultrasound in order to free the genic contents, homogenization and after this, filtrating.
- 2) Immune action. An animal is immunized with dead cultures and after it is injected with the same cultures, live, in its peritoneus.

After some hours have passed, in the peritoneal exudation will stay the residua of the bacterial lysis, and, therefore, the genes free of the inoculated bacteria.

If we filtrate this matter and we inactivate it, we will have another vaccine through another procedure, although it will be not efficient if these genes have adapted themselves to the aerobian medium, because the antigenic specificity can change depending on the "vitalized enzyme", and if it is free or it is working inside the nucleus of the bacteria or the carcinogenic gene.

In other words, depending on its performing as gene or as virus or phago; or what is the same, depending on its performing, grouped in colectivities or with other "vital units" that are autonomous.

And this antigenic variation depends on the functional location of the "vitalized enzyme" in the aerobic medium or in the anaerobic medium, maybe because at modifying the atomic tensions of their active groups, the distance among them modifies too.

In fact, the enzymes are proteins, and therefore they can originate antibodies when they are parenterally injected to an individual, because a series of antisera have been obtained and they contain specific antibodies for determined enzymes and in many cases they have been used for the specific isolation of the enzyme of a complex extract by precipitation.

The antisera are produced in response to a group or particular disposition of the protean molecule and are specific only for the total enzyme.

If the antigenic group is far from the active center, the enzyme can be precipitated as enzyme-antibody complex, without losing activity.

If, on the contrary, the active center coincides with the antigenic center, the antibody or antienzyme acts as a competitive inhibitor.

The ortho - diphenyloxidase keeps its activity after precipitating on the antibody while the lectinase is totally inactivated. There are numerous intermediate cases.

The intimate mechanism of immunity is due to the following circumstances, as all of us know: The organism receives habitually the proteins through food and by the action of the digestive enzymes, they are degraded to the state of amino acids, which are the ones that absorb and metabolize.

But if any protein, in our case, enzymes -is injected parenterally, the organism finds itself in a situation of emergency, because intestinally it lacks digestive enzymes.

Then, it has to create, in the first place, a specific antibody that makes flocculate the protean globule of the enzyme, whose free active groups give it the character of stable colloid and active as well.

For this it has to create antibodies or antienzymes - gamma immune-globulins - with active groups located at the same spatial distance the enzymes has, but with physical and chemical activity that is opposite to the one of the enzymatic colloid.

When both active colloids join, their respective charges neutralize each other and, then, the complex flocculates and loses its physical stability and its chemical and catalytic action totally or partially.

Then the enzyme is attacked by the cellular peptidases and trypsin and it is simplified to its constitutive amino-acids that stay free.

It is when the levo and dextro-amino-oxidases have an intervention that transform them into carbonic acids in the first catabolic phase.

When the enzyme is totally hydrolyzed, the antienzyme or antibody stays free and it can block and flocculate a new enzymatic antigen.

From this results that if the dextro-amino-oxidases do not desaminate the dextro-amino-acids of the protean chains of the carcinogenic enzymes - as long as they stay peptidically joined in chain- they do not mean direct defence against cancer, but they are the direct consequence of the existence of anticancer immuno-globulines, and therefore, from their existence we can deduce indirectly the existence of specific anticancer antibodies.

So, the adaptation of the carcinogenic "vitalized enzyme" to the interior of the nucleus of the cancerous cell must bring with it a readjusting of the distances of the active groups of its protean molecule and, then, it can not be flocculated or fixed - previous factors for its inactivation or total destruction - by the enzymes created by the vaccines of aerobic enzymes since at varying the spatial distances of the active groups to be neutralized, the specificity disappears.

The variation of the antigenic specificity between the normal enzyme and the "vitalized enzyme" is due to a blocking of part of the active groups of the vitalized enzyme by the DNA that supplies other active groups, modifying the structure of the normal enzyme at becoming a protein-DNA complex.

From all what has been said until now we deduce that in order that an anticancer vaccine has efficacy it has to be elaborated with "vitalized enzymes" adapted to anaerobious life. If we make it with normal enzymes, the competitive action of the dextrogiroproteins can be partially inhibited, of the enzymes send by the "vitalized enzymes" and carcinogenic genes from inside the nucleus of the cancerous cell; but it will be not able to act directly against the genes and the "vitalized enzymes", the tumour goes on growing and invading as if nothing had been done.

It is true that you influence favourably on the general state and especially on pain; but you do not get to modify the growing of the tumour.

We have wanted to clear these extremes because has the elaboration of the anticancer vaccines has to be based on them.

We would like to make another comment: and it is that vaccines with total germs must never be made and at all those of preventive type since when we produce an antibacterial immunity,

we create an artificial induction, and if the individual has in his tissues the same germs against which you vaccinate him, those lisate, leaving the genes and "vitalized enzymes" free and in conditions of being able to transfer to a polarized cell, taking place a cancerization, and provoking precisely what we are trying to avoid.

The immunity that we have to provoke is of the opposite sign, in other words, of genic type, viric or phagic, because this way we stop and destroy the possible lytic dispersion of the bacterium and with this we avoid the transmission that takes place.

We think that the concepts have been well understood, but we are going to draw a scheme of the ethiological concept that derivate from what was explained.

The cancerization process passes through the following phases:

Before the bacterium sends out the carcinogenic gene is a gene of it. When the bacterium is lysate and the gene becomes free, it automatically turns into a "vital unit" that is autonomous, in other words, a virus or a phago. When this virus or phago joins the cromosomic equipment of the cancerous cell it is again a gene.

To speak, then, of virus as producers of the human classic cancer is very simple, because before we have to know until where the "vital unit, virus, phago or gene" reaches and these differences have been first explained by us.

The correct ethiological definition of cancer would be the following:

"The cancer is due ethiologically to the transference of a gene or "vitalized enzyme" of determined microbial germs to the cromosomic equipment of the polarized cell - by lesion of its genic equipment - to which it remains joined, and that is transmitted because it forms part of the inherited patrimony of such cell, to all that come from it directly by multiplication.

Multiplication that is possible in series and atypically, because the cancerigen gene, through its dextrogiroproteins, interferes the phosphorilative processes, acumulating energy in the carcinogenic cell.

FAREWELL.

We thought that what was going to be difficult was what was discovered; but now that we have come to the end we are seeing that it is even more difficult to get that the others want to understand it.

There still remains the great mission of creating life under the form of "vital units" starting from normal enzymes. We have not strength left to go on preaching in the dessert and without the most elemental help.

So, completed with the artificial immunology the study of all the aspects of cancer, problem whose solution we could not morally leave out, with all the sacrifices that it cost us, we abandon the rest of the enterprises, and therefore, this is our last work that closes a period of twenty years of our life.

Nothing obliges us to continue, but we have left, as fruit of these twenty years, a solid building built and an effective inheritance, that will finish all the personal hopes of the researchers in cancerology - main reason for which we have not received help - in the same proportion that is starts being used and getting to the beds of the benefits.

It is possible that they feel more humble when they finish reading the following lines:

The circumstance that the genes of the bacteria can be freed by immune lysis - as it was explained in part XI of these works - becoming Phages or autonomous "vital units", and the fact that in this genic dispersion as many autonomous lives as genes the bacteria had can result, took us to the demonstration that the life in cells was not continuing (see XIII part). Starting from this fact it was not difficult to get to the concept defined in "unified plurality" that life in superior beings was also discontinuous and that the personality of an individual was the exterior reflex of billions or trillions of collectivized lives.

But now we are going to demonstrate to which point those affirmations are true.

The superior being is only a delegate of his cellular collectivity, an emanation of the life of the whole set, and although he thinks he can act with total and free behaviour, he obeys.

Man, obeying, the orders of his vegetative cells, eats, drinks, breathe, eliminates and protects himself from heat and cold.

All the life of man is dedicated to satisfy the imperative orders of the collectivity that rules, although inside he thinks that his volitions come from an auto-determination that is independent of that collectivity.

But let's demonstrate that he is wrong with a simple example:

Man owns vegetative cells that order him, as we saw; but he has also other cells, polarized in his sexual glands, that order him another thing, the mission of depolarizing them.

Man does this mission with pleasure and elegantly, being compensated by the cellular collectivity with a nervous discharge.

In order to accomplish it he falls in love and is emotionated by the being that he has chosen, looks at her feverishly at her eyes, gets excitement from a photography or an object that reminds her and he feels poet, living a life of exaltation and hyper-sensitivity and inside him he believes that this is born from the most profound and intimate spirit.

There you have them sitting on a bench, flying skies of tenderness and happiness.

We are going to kidnap them and separate them.

Now we do them a small surgical operation and take away their sexual glands. After a month we put them together.

It is curious, there is neither fire, nor fever in their eyes any longer, and when they touch each other's hands, they do not get any emotion. They are amazed because their ancient loving sensations have stopped existing.

Love, that they though had been born from the most profound of their spirits, has gone away: but the only thing that has disappeared are the polarized cells, that ordered depolarizing and the glands that "manufactured" them.

When the cells that ordered the individual, as a delegate of them, to depolarize and to fall in love, since society imposes a compass of waiting, and all hope is love, disappear, the different aspects that are around the essential act.

Whith this it is demonstrated that love was only a depolarization order, translated in a bright game of colours and elegance by an intelligent being that has a potent organ to think, as the eagle has it to fly.

The volume of the skull of man has been growing from 800 ml in the most ancient phosils found to 1.200 ml in the primitive man until 1500 in the civilized man.

When we judge the projection of other types of activities and their apparent origin we are wrong, the same as with love and these mistakes come from interpretation the actions in which we act obeying our cellular collectivity as volitive autonomous acts.

To agree with what we really are - without imposing conditions to the one that has allowed us to be born - has the meaning of a beautiful conformist philosophy, and on this time will create a firm and sincere moral.

July, 17th, 1961

When we had already sent the work "The crystal virus" to magazines for its publication, we received from Zaragoza the blood of a patient sent by two Drs. - whose names we ommit because we do not have authorization to publish them - with the following diagnosis: "bundloma that follows an increasing progression at the fastest rythm, such that in two months it occupies all the right hemiabdomen with the same characteristics of hardness, nodules, pain etc.. and with a very precarious general state. Everything points to a malign tumouration of hepatic origin (or mesenteric ganglionar) almost for sure of sarcomatose type.

Blood, following our instructions was taken out with syring sterilised in sterilizing apparatus and shaken for some three minutes. Blood was received in perfect conditions and several tubes were sown with "artificial protoplasmatic fluid" putting three drops, with Pasteur tube in the condensation water, mixing and spreading by inclination of the tube on all the surface of the inclined agar.

They were left at room temperature and having passed 72 hours we thought we had observed some crystals in the condensation water, but they could not be seen well because of blood.

Without shaking we took with the platine handle from the transparent part of the condensation water and we sowed new tubes with "artificial protoplasmatic fluid" solidificated by the addition of agar.

Two days later, abundant crystals appeared in the condensation water in all the tubes.

We took out some of them with the platinum handle and they were microphotographed at different moments.

The direct proof has been done and has behaved following all our previsions.

We leave the widening of numerous details that we have observed for the following work but we would like to state here that the isolated crystal of the pig are mainly aerobic and grow abundantly on the free surface of the "artificial protoplasmatic fluid" and the ones of cancer only grow in the bottom of the condensation water, in the bottom of the tubes of liquid "artificial protoplasmatic fluid" and also in the bottom of the tubes of the same liquid anaerobic medium through the addition of liquid paraffin.

This microaerohilia was previewed, as it can be observed in the previous works.

CONCLUSIONS.

1.- We have been able to demonstrate that the crystal virus come from the crystallization of ribonucleoprotein genic matter of several lineages of bacteria, after a parasitic interphase of "intraorganic spore."

2.- We have been able to demonstrate the reversibility of the phenomenon when we demonstrated that they become bacteria of the same nature of the ones that originated then in certain conditions.

3.- The crystal virus is the one that performs the transference of genic matter to the human or animal cell and the transference is due to cancerization, according to all the previsions published before - except, as it is demonstrated now, it were carried out under the form of crystallized material proceeding from the bacteria we had already denounced.

4.- When we went further in the work, we have arrived to directly demonstration that it is really so, by isolating in the blood of patient of malignant tumouration a microaerophil crystal virus.

5.- That the culture of these crystal virus is possible to be done "in vitro" in our own culture mediums to which we call "artificial protoplasmatic fluids", in which, because they are not attacked, they become of macroscopic size.

CRYSTAL VIRUS --- XIX

THEIR ORIGIN AND THEIR LINKS WITH CANCER

In previous publications we have explained the origin, the structure and the mechanism of multiplication of the spherical virus, not crystallized or deoxyribonucleic-protein (1) (2) and also the origin of the bacteria-phage (3)

Chance has given us now the opportunity of being able of explaining the origin of the crystal viruses, viruses of the vegetables, or ribo-nucleic protean viruses, clearing up an issue that maybe remained somehow untouched due to the enormous difficulty for the biologist to do a satisfactory and correct interpretation.

Of all the enigmas which man has faced, and that has been a horrible nightmare, maybe it has been cancer and the crystal virus: one in the area of the human clinic and the other in the area of pure biology, the ones that have taken away the time, the technique, the effort, the budget, the illusions and the desire of isolated researchers and research teams, and the hope of a society willing to clear them as well.

Since both enigmas are linked by a very tight relation of concomitant circumstances, it was to foresee that the human being that had the chance of getting until the bottom of one of those problems, automatically, would solve, by proximity, the other.

A previous feeling, gave us the security that we had been chosen by destiny for this service to the rest of the people and that security linked our life, more than 20 years ago, to the one goal of obtaining it.

If the previous feeling has been accomplished or not, everybody will have the occasion of testing it when they finish reading this work which has been accomplished because of the constant work of continuing without any rest for 20 years, privately, a ghost in the rural environment.

BRIEF HISTORICAL DRAFT

The illnesses of the plants produced by a virus, although they were not recognized as such, were known long before the discovering of the bacteria, but it seems to have been (4) Allard the first to achieve the observation of a virus of plant as an independent entity in 1916 and trying to isolate the virus of the mosaic of tobacco, he absorbed an active fraction of juices of ill plants, through talcum and aluminium hydroxide.

A few years later, McKinney (5) tried to purify the same virus centrifuging at a certain speed, during a reduced time, raw sap, to free the matter from strange substances. He heated at 65° C the over swum part and he centrifuged again for 5 to 10 minutes.

But the first serious attempt of precipitating and isolating the virus of the mosaic of tobacco through chemical methods was done by Vinson (6) using acetone, ammoniac sulphate and safranine.

Later, Vinson and Petre (7) arrived to the conclusion that the precipitated of safranine virus was inactive, but if safranine was eliminated with amylic alcohol, the activity was established again. From these circumstances they were able to deduce that in many aspects the virus behave in similar way as that of a chemical substance.

In 1933 Barton- Wright and Mc-Bain (8) tried to precipitate the virus using ammoniac sulphate, but the crystals they obtained were not crystal of virus.

In 1935 Stanley (9), from the Rockefeller Institute of Princeton, U.S.A., got to describe for the first time the crystallizing of the virus. He was, therefore, the first investigator that obtained the virus as a tangible agent, demonstrating that it was composed by protein.

In 1936, Best (10), working independently in Australia, precipitated the virus of the mosaic of tobacco at its iso-electric point, demonstrating that the precipitated gave the reaction of proteins.

That same year, Bawden, Pirie and Fankuche (11) demonstrated that the protein of the virus of the mosaic of tobacco could exist at the mesomorphic state or of liquid crystal.

After, Bawden and Pierie (12) demonstrated that the virus was a nucleoprotein.

All these first experiences were done with the virus of the mosaic of tobacco, because its stability and high concentration in the guest plant allows this kind of investigation.

Takahashi and Rawlins (13) demonstrated that the virus of the mosaic of tobacco, taken out of the plant was a little stick and not a sphere, underlining that if the raw sap of the plants ill with mosaic to polarized light among crossed nicols, this presents the phenomenon of "anisotropy to fluxes" because these particles contained in the flowing liquid tend to orient with their major axes parallel to the direction of the current as woods in a river.

In these circumstances a liquid containing little sticks that have a refraction index different from the liquid is double refractive when the transmission direction of the incident light is perpendicular to the direction of the flow and this is what is known as "anisotropy to the flow".

Bawden and Pirie (14) demonstrated after that if the concentrated solutions of the virus of the mosaic of tobacco rest the liquid separates in to capes. The upper one is more opalescent although it is less diluted than the inferior one. If these two capes are observed with the polarized light one can observe that the inferior cape is spontaneously bi-refrigent, in other words, a crystalline liquid body, but the upper cape is not bi-refrigent while it is at rest, but it is afterwards when it is shaken softly.

After, the physicists, chemists and immunologists obtained great advances through the electronic microscope and the technique of the microphotography of shadows, through studies of the difraction of the X rays and with the help of the ultra-centrifuger and the immunology studies that gave us images and ideas that complete the knowledge that we had before with these virus, but of which there are still many questions to answer.

We have told about the recent story of the discoveries of the crystal virus but there are data that are more ancient, some of them, because we consider them interesting, are brought out now.

In 1892, the scientific existence of a virus was demonstrated.

Iwanoswsky (15), working on the tobacco mosaic described by Mayer, proved that the sap of the ill plant could be contagious for the mosaic of the healthy plants of the same specie after having passed the filter of the bacteria-proof bulb that had been perfectly sterilized before by filtration.

But the same Iwanoswky did not seem to interpret exactly the meaning of his experience and his discovering passed without being noticed.

Despite his own demonstration of the capacity of the virus of mosaic of tobacco to go through filters, Iwanowsky seem to be convinced that the illness was produced by a bacteria, idea that was exposed for the first time by Bayer in 1886.

Seven years later, the proof of filtration done by Iwanowsky was repeated by Beijerinck (16) who proposed then his theory of a "contagium vivum fluidum".

All these ideas were swept away when Stanley isolated the protein of the virus of tobacco, but we pick them up, because after having read this work, the ideas of Mayer and Iwanowsky will recover part of their value.

The discovering of the crystal virus produced amazement among the biologists who believed that there was a precise division line between the living things and the ones that were not. However, in these nucleoproteins that constitute the virus of the plants there was something that crystallized and besides that multiplied while the illness progressed in the plant.

In favour of the nature of the living being talk the power of multiplying, and also that the virus of the plants and also the ones of the animals, mutate and invariably originate lines, varieties or types tightly related with the mother line.

These two properties are characteristic of the living organisms, but, on the other hand, we have the indisputable behaviour of many virus as chemical substances and their isolation as crystalline form.

We, that in a previous work published before gave an idea of the intimate structure of the normal spherical virus, admitting that they are a group in team of "vitalized enzymes", about which already in the year 1952 (18) we had said that they could originate by spontaneous grouping in a team of enzymes dared not face the enigma that supposed the crystal virus until now.

But "luck" has given us the occasion of being able to clear this problem too, and by solving it, we have found a clear explanation and visible too, of numerous enigmas, among them the perfect explanation of how the transmission of genetic matter is transmitted, from the "carcinogenic agents" to the cell where the cancer starts.

Being all the investigators and researchers convinced that the virus are linked necessarily to a sub-microscopic size, which is true for the virus that are in situation of emergency inside the live cell and that defend themselves and that by reciprocity make them sub-microscopic and aggressive, in which kind they are studied currently,

we will have to suffer during a certain time an attitude of general scepticism - greater from those that are less clever with which we have already counted -

In a previous work (19) we demonstrated that the normal deoxy-ribo-nucleus protean virus, at least some of them which we have had the occasion of observing, could be observed under the form of anteridia fixed to the red globules, or rarely loose, gifted of mobility similar to that of spermatozoids, in ordinary microscope, with only some 1500 diameter of increase and even less, whose work contained some drawings that gave an idea of their morphology and their sexual evolution.

Today we will see how the crystal virus can be seen even at simple sight.

Precairous life the one of these beings in artificial mediums, even in the mediums we use and that could be called "artificial proto-plasmatic flows", but of real life, of beings not suffering aggression from the medium and where they multiply during several generations infinitely bigger than those known.

Definitely one has to have "faith" that we are saying the truth, because do not think that we are going to expose ourselves to ridicule after twenty years of links to pure and not interested research. And if somebody believes the opposite, he should jump into the bullfight ring, as we say in these lands.

Despite the silence we are surrounded of, we notice that we are getting a bigger credit margin and our interest in obtaining it is not personal, but great benefit to the human community will result and also for biological sciences, compensating positively the destructive alarm that means the progress of other sciences.

With this we have wanted to situate the far and near facts so that the demonstrations can be better understood.

Immediate background and description of the advance of the experimental investigation.

In our long life as autonomous microbiologists it has happened several times - four or five - that when arranging animal entrails for using them as base for the preparation of vaccines, that instead of appearing the series of a bacterial colony , a crystal culture appeared on the surface of the tubes of the inclined agar.

The time before the last was six years ago and we remember perfectly that we got to maintain in a state of multiplication, and the culture reproducing, during three successive passes.

We recognize that we still lacked the necessary base for being able to interpret the phenomenon as we have been able to do now, because our ideas had not developed enough, because of the lack of support of numerous experimental demonstrations.

Observations of the same kind, we are sure, have the occasion of having some other microbiologists that are dedicated to animal microbiology, but it has not gone further

than being an observation and a curious circumstance, without any possible explanation.

So, it is possible that we have done no other thing than interpreting something that must have been observed before by many biologists that, overwhelmed by the prejudices of the epoch, of believing that virus have to live linked to ultramicroscopic sizes, have not related these crystals with crystal viruses.

But the last time that it occurred to us, we had started and proceeded from an accurate observation from the beginning - before making the sowings - to observe circumstances that we had pre-said in previous works, during the observation of the microscopic preparations, of the dead animal entails.

The facts occurred like this:

Around the middle of April of the current year we made autopsy of a pig, which we appreciated strong inflammatory lesions located at spleen and a generalized haemorrhagic state in seroses and mucoses.

Suspecting it was a case of african porcine pest, illness that has not shown in our area, and because of the posterior interest of the staff in something that was observed in the microscopic exam of the entails, we proceed, not with the professional interest of solving one more case, but with the evidence in front of a bacteria that typically corresponded to the kind denunciation by us as "carcinogenic" and of which we gave reference in a previous work.(20)

And the issue did not lose interest for us because the case in examination did not have the slightest relation with a neoplastic proliferation, but it increased it. The fact is that these germs are saprophyte and in they are very difficult to observe in the cancer patient because when the neoplasia shows up, the transference has taken place a long time ago and the bacteria and the "intra-organic spores" caused by it have disappeared.

The accurate microscopic examination of frolement of different entails, demonstrated us that a long positive Gram bacillus was the only visible microscopic cause and responsible of the death of the animal. Most of the times it was a diplo-bacillus that afterwards, of course, was not an anthracis bacillus from a morphological point of view.

But from the microscopic examination our observations and previous experimental demonstration start to be fructiferous. A detailed examination demonstrated that together with the bacillar form, there were "intra-organic spores" which we said (20) had different bio-chemistry and meaning from that of the commonly known spores as kinds of resistance forms in the environment.

We decided to isolate such bacillus, seeding an ordinary broth, glucosed broth, anaerobious liver broth, and ordinary inclined agar, agar for the anaerobious seeding and in our "artificial proto-plasmatic fluid".

But with great surprise on our part, when three days passed there was no positive growing in any of the sowed mediums.

It was evident that the bacillus that we had observed in abundance at the examination of the entails had to grow in some of those mediums of culture that were accurately prepared, and that have been useful to us later for the re-sowing of all the germs of our collection of bacteria.

We were more than puzzled when in the tubes of the inclined agar - from 2cm above the condensation water to it -we observed a specie of suspicious growing, that examined with the magnifying glass became crystals.

Since it was not the first time that we observed them, and knowing now positively where they came from, the transformation of the bacteria in crystal, with took with the handle of sowing condensation water from one of the tubes where the crystals had grown and we sowed three new tubes.

Immediately we observed the surface sowed through the microscope at 50 increases and only five or six crystals were visible en each tube because they had been carried by the handle.

When 48 hours had passed a culture showed up that was perfectly seen at simple sight, because of its abundance, following the grooves left by the platinum needle on the surface of the agar and that, examined with little increasing resulted identical crystals to the ones re-sowed.

Repeated the sowings, we have obtained seven passes until the current moment, although decreasing the exuberance in the last ones.

It is of all evidence that the macro-crystals multiply like any other living being and that they are of the same nature of the crystal virus.

The fortune of having been able of examining the entails, of having been able of identifying the germ whose existence we had pre-said together with its "intra-organic spores " and having been able therefore, to arrive to the obliged conclusion that the crystals came from them, since they do not show up in the form of bacillus at any place, has a great importance because it demonstrates that the illogical enigma of the living crystals, of chemical nature, is now more logical.

Our interpretation - and we have done much previous work for something in the 18 works published - is that the bacteria eliminates the somatic part and becomes an "intra-organic spore", which keeps exclusively the germinal matterl.

It is not a virus yet, because its germinal enzymes are wrapped by a membrane that is selective to the passing of the co-enzymes and therefore they are not activated "in situ", but they only need that they take it off in order that the transformation in virus becomes automatic, and this was explained in another work.

In other words, the gene ribo-nucleus-protein, when getting free of the spore membrane, creates the first nucleus of crystalline condensation that multiplies to ultramicroscopic size while it stays in contact with live cells, but that forms a macro-crystal by series accumulation of the same matter in the mediums of culture.

They are macro-crystals formed by numerous vital units, and visible, because of the same reason that a bacterial colony is viewed, by aggregation of bacteria of the same class.

The interest of these investigations lies not only in having arrived to the origin, in having been able to explain the nature of the crystal virus - origin that was presumed by Iwanowsky , despite having been he, the first in demonstrating the filtering-ability of the contagious matter - but in multiple phenomena observed after a stressing period of experimental observations and that we have been able to collect partially in a graphic way, within the possibilities of a micro-photographic camera improvised by us so that the reader is able to participate somehow in them.

Of the experimental tests done until now- and we are just starting- two are to underline because of their importance:

1st- If on a culture on inclined agar or on Petri plaque, of living crystals we sow a culture of Capri-septic bacillus, or caprine Pasteurella, this grows normal and uniform at the beginning, but fast mutant colonies show up that stand out easily because of their opacity that is far greater and makes them different from the rest of the colonies of the not mutated bacillus which are transparent.

They are, without discussion, mutated colonies of such bacillus, that at microscope show smaller than the normal, but it is even more curious that under these mutated colonies, mutated crystal show up, at least in size and morphology.

Observe how immediately under a series of mutated colonies ob caprisepticus bacillus a little out of focus in order to focus the crystal that shows under them, a not long crystal appear and they are much smaller and seem of a different lineage from the ones originally sowed, some of which are without mutating (observe with magnifying crystal)

2nd - If on another tube with inclined agar, containing abundance of superficial culture of living crystal, we sow a germ of the Subtilis group, this grows, but in the areas where contact among the bacterial colonies and crystals is established, the following phenomenon happens:

The crystal blur and dissolve, but the colonies of the bacillus of the group Subtilis, to this contact lose opacity and become transparent again, vitrifying, in a phenomenon that is similar to the vitrifying of the bacteria colonies in contact with some bacteria-phage lineages.

The details are not observed because we had the necessity to microphotograph through a thick cape of agar due to the inclination of the agar but the light zones are observed.

These two experimental tests are of great importance because they visibly show that there is a transference of gene matter from crystal to bacteria and possibly from bacteria to crystal which leads to a double mutation.

But the importance for humans lies, aside from other considerations of vegetal pathology, gene and animal pathology, etc. in that with this it is demonstrated at sight that the transmission of gene matter from a "carcinogenic bacteria", transformed in crystal virus to a somatic human cell is possible, since the bacteria that in our case receive the gene matter from the crystal virus, mutating, are, at the end, bacterial cells.

And this is so since the bacteria that in our case became a crystal virus was a perfectly defined type of the group of micro-organisms that we have already denounced in previous works as carcinogenic agents by transmission of germinal matter. In this case neither the typology of the bacillus nor its intra-organic spores were missing.

But let us examine before finishing several aspects and considerations that derive from the obtained observations.

Among the crystal virus there are some that produce proliferations and tumours, but more than acting directly, probably through transmission of germinal matter from virus or cell - do not forget that from now on we consider the crystal virus, crystallized bacteria, in other words, the crystallized germ of some types of bacteria - and among them the most common

Type is the one known as "neation" which consists in a secondary leave that grows in the inferior face of another leave. They are provoked by numerous virus, but only in certain guests.

It has been observed that the following virus produce "enations": the complex of the virus of the tobacco rosetta, on tobacco and similar lineages of nicotine, the virus of the black ring of the tomato, on plants of cucumber of green house, and the virus of the in-rolling of the leave of tobacco on tobacco.

In America, cancers of plants determined by this type of virus have been described and named "virus of the tumour of wound.

Great protuberances that apparently can grow without limit develop in the roots and stems of the affected plants of white smelling clover: *Melilotus Alba*.

Being already demonstrated that there is a game of transmutations of certain bacteria to a crystal virus, the mechanic of cancer that comes as a conclusion is exactly the pointed out by us through numerous publications - that have been elevating the problem to the clear state in which it is today through partial demonstrations - with

the only variant that we had not prejudged that the transmission was done through a crystal virus, although we had already said that the gene matter of the bacteria when this spread and before making the transmission became a virus.

So, as the ribo-nucleus-protein given by the crystal virus to the human somatic cell is of the same nature than the one of the gene matter of the bacteria of which they come from and these have dextro-turn proteins in their germinal enzymatic fraction the mechanism of phosphorilative interference that they provoke and that drives cancer patient to cachexia and death is the same one that we explained in another previous work (23)

Another observation made in our investigations is one confirming the observations of Bawden, Pirie, Bernal and Fankuchen referred before, because setting a drop of condensation water of a tube of positive culture of crystals on the surface of the agar plaque and focusing it in the microscope, at the beginning we do not see any crystal, but while the drop is getting absorbed by the agar there is an active condensation of the liquid crystals to the solid state.

This demonstrates that the observation of such researchers that the crystals can exist in a mesomorphic state or liquid is exact.

But there are still more circumstances because we have obtained the reversibility of the phenomenon, in other words, the transformation of the crystals in bacteria again, the following way.

We have crushed in the mortar green leaves of wallflowers and ivy geranium, we have filtrated the juice through sterilizing plaque, mixed with ordinary meat soup, we have kept it a week at the stove at environmental temperature, without losing a bit of transparency.

After, we have sowed it with pure crystal culture and we have left it at room temperature.

After three days the same bacteria that had been in the pig entails and had originated the crystals showed up again.

This bacterium has made the filtrated broth in which it was cultivated viscous and in the culture neither spores of intra-organic kind nor of any other kind are viewed, which demonstrates that the "intra-organic spore" is only produced in the organism of the parasited beings, as a previous phase to the appearance of the crystal virus.

Of all these circumstances a suspicion is born and this could be adapted to reality:

The same way the nucleus of the animal cells - beings of limited growing because of a specific format - are unable to regenerate, in general terms, amputated organs and only own deoxi-ribo-protein as germinal matter, the plants, that are able to elaborate starting from leaf buds or shoots, new tissues all their life, own ribo-nucleus-proteins as gene matter.

On the other hand, the crystal virus only attack in an non-effective transmissible way - in general terms, because we have already seen in our pig that it did not happen like that - plants and are ribo-nucleus-proteins, while the non crystalline virus that are composed of deoxi-ribo-nucleus-proteins attack in an epidemic and epizootic way men and animals.

Located the facts at this point, we can say that the transmission of gene matter of ribo-nucleus-protean nature to the deoxi-ribo-nucleic germinal matter of a somatic human cell, can modify the latter in its stability of animal cell and get it close to the condition of vegetal cell, in what refers to the issue of not obeying patterns that regulate the obliged statics of animal cell, but becoming stud that is going to generate an interrupted series of cellular multiplications based on an absorption or capture of extraordinary energy, supplied by the capture of the phosphorilative processes by the dextro-turn-proteins that inhibit the organic phosphorilations in own benefit.

All these causes constitute the "primus movens" of the multiplicative initiation of the neoplasias.

So, the genetic difference between normal virus and crystal virus lies in that the crystal virus can come from the crystallization of genetic matter of only one bacterium, without spreading the "subunits" or "vitalized enzymes" (17), or from the result of the interchange of the genic matter of a crystal virus with one bacteria as it can be seen in the microphotography number 5, the spheric virus, not crystallized, only show up after an association in the superficial crown (17) of enzymes joint in a team , on a nucleus of deoxi-ribonucleic acid or ribonucleic of non crystalline type whose enzymes come from several bacteria, initiating through the formation of an elemental provirus, that only counts with part of the definitive enzymatic team and only becomes vital autonomous unit at completing , because only then it is able to get the energy of a complete cycle for multiplicative effects.

The mesomorphic state or of liquid crystals where the individualized molecules of the crystal virus are spread in a liquid phase demonstrate it so.

The intimate multiplication of the crystal virus has not to follow the spreading pattern of the multiplication of normal virus because it has only to reproduce one line or one pre-existent plan, by accumulation on it of matter of the same nature and reproducing it in this case as a photographic negative to its positive.

We finish for today, leaving for other works the biochemical study of the crystal virus; the pathogen action of the mutations produced by contact with other lineages of bacteria and the circumstances that result from the exploration of that mysterious world (each time less) where we can find the explanation of the genesis of life.

CONCLUSIONS

1.- We have been able to show that the crystal viruses come from the crystallisation of the ribo-nucleus protean genic matter of several kinds of bacteria, after an intermediate parasitic phase of inter organic spore.

2.- We have been able to show that this phenomenon is reversible, demonstrating that the virus crystals are transformed into bacteria of the same kind as those from which they came under certain conditions.

3.- The crystal virus is the entity whose effects of transference of genic matter to the human or animal cell, cancerization, being the result of this transference in accordance with all the forecasts we have previously published, except - as we now show - in such cases as when the latter is developed in the form of crystallized genic matter coming from bacteria that we have already revealed.

4.- We have achieved direct proof that this is in fact the case when from the blood of a patient suffering from a malignant tumour a micro acrophic crystal is isolated.

5.- That the cultivation of these virus crystals is perfectly possible under glass by our means of cultivation which we have called artificial proto plasmatic fluids, in which , unless attacked, the crystals can reach macroscopic size.

IX. - AUTHOSYNTESIS OF THE VITAL UNITS.

January 20th 1959 - by Fernando Chacón Mejías

CANCEROLOGIC MATTERS - 1962

We are going to start a second epoch of publications about spherical virus and oncology, of experimental kind, during which the problems defined in the first series of 18 works will be accurately examined. Those works were published in the magazine "El Monitor de la Farmacia", between the years 1959-1961.

Along it we will give details of the techniques to be employed and the orientation to take so that any researcher can reproduce de biological discoveries performed, adding also abundant micro photographic matter for the suitable testing and comparison of results.

The change of address to a more adequate environment, better for the development or our investigations, and the collaboration that we have started to get so as to prove all the issues that we have stated before, will make that our techniques and discoveries are introduced in the daily "modus operandi", and this is good for everybody.

But the problem that we have stated and solved en the experimental field of laboratory - and that we have been stopped to take to certain cattle raising aspects - is universal and we have to make it public so that it arrives to the knowledge of all human groups.

Prepare yourselves, then, all of you that have scientific curiosity, to live like pioneers the new era that our works open to biology, genetics, physiology, medical pathology and oncology.

Only this initial work of the "second epoch" will be partially speculative, because it is always valid to speculate - that is like to stretch the arches of the bridge - when the pillars are of experimental kind and are strongly settled.

Besides, it is going to be fundamentally polemic, because the more they keep on giving out sensational news without a base the more apathy would it supply to investigators, who seeing the impossibility of obtaining a satisfactory result, would give up to sacrifice their lives to a useless enterprise.

Because of this and because we are not the least afraid to be obliged to rectify, we call your attention to two Nobel prizes of the maximum authority in the matters we have solved, Dr. Salk, eminent virologist, discoverer of the antipolio vaccine, but who belongs to a generation that our publications left behind, and Dr. Ochoa, on which regards the interpretation of the constitution of the vital entities in their chemical aspect.

If from the polemic we came out defeated - circumstance that we have previously eliminated, because we answered the speculations without base with demonstrable experimental arguments - but consequently a few steps ahead were given, we would feel very satisfied.

However, if polemic does not show up, we will consider it impotence and not indifference, and it would be worse, because events would overpass the silent posture.

Moreover, most when history of sciences demonstrates us that the breaking of the scientific front at a great scale was always done by the private and personal investigation.

Let's start, then, the attack - with a little virulence in order to provoke the necessary reaction - since it seems that the other ways have been denied to us, but making the reservation that the ones who I try to attract to a constructive polemic have our greatest admiration and respect as men who are consecrated to the welfare of their equals.

In the last work published by "El Monitor de la Farmacia" the 20th of June 1961, we let know that any investigator who tried the solution of the problem of cancer along another way, different from ours would lose his time. The same would happen to the one who tried to make believe that living molecules have a different constitution from the one we had pointed out.

We have been watching if some wrong concepts on these issues showed up so as to attack back, with the goal of avoiding vicious concepts that delayed and condemned to ostracism the two fundamental aspects that we have defined in the 18 works of the first epoch.

We have not felt obliged to make more declarations than the ones we did at that time. Now Nobel Prize Dr. Salk sends ahead all his authority, affirming the presence of the virus of cancer and announcing that he is going to try the preparation of the vaccine.

These declarations oblige us to attack back.

Regarding another area of concepts, we have to go back to the schism that Dr. Ochoa's declarations created when he affirmed that the RNA molecules that he had obtained through biological synthesis had life, as the national press said at that time on big headlines.

The prestige of both science men gravitating over our affirmations - although we understand that Dr. Ochoa denied the affirmation of press about the vitality of his molecules after - could damage a lot by leading to confusion problems that in both concepts - although many doubt it - we have made pass from the speculation ground to the experimental field.

In consequence, we are going to check both concepts, adapting them to their real possibilities so that things stay clear and in their place, for the benefit of all.

The ones that innocently believed the affirmations that were put in mouth of Doctor Ochoa - that were not few - that his molecules of RNA had life, did not know the mechanics of biochemistry that generates life.

They ignored that the minimum of portion of live entity is the product of the following vicious circle.

Potential energy condensed under the form of DNA or RNA, which is necessary for emergency cases when the cells that shelter them die and that also serve as pattern for the synthesis of enzymatic proteins - enzymatic equipment coupled to RNA-DNA - able not only to "burn" carbonated chains in glucolytic process with the help of oxygen joined to hemoglobine, but to serve as catalytic equipment-with the help of the liberated energy by glucolysis, in order to autosynthetise in duplicative process - combined action of the enzymatic equipment and the "vital unit", on a substrat of glucose, which it "burns" by aerobious glucolytic degradation and with the help of the hemoglobinic oxygen in which cycle biochemical energy comes out. The utilization of this energy for authosynthetize by action of its enzymatic equipment, on purines, pirimidines, pentoses or desoxipentoses, phosphates and aminoacids and starting all over again.

We see, then, that the most elemental constitution of an live entity is linked to the structure described by us before. In other words, nucleus of DNA or RNA with protean additions of the enzymatic equipment, and this structure is fatally linked in order to auto-multiply, a substrate where simple free sugars exist, or at least aminoacids that degrade in aerobious glucolytic process for having chemical energy and simple matter-not condensed - of their own constitutive elements, in other words: purine, pirimidines, pentoses, phosphates and amino acids. They are in charge of specifically ordering for duplicating and of course an oxidative mechanism necessary for accomplishing the cycle of the aerobious glucosis.

This substance that exists in all animals, because they eat and they hydrolize what they eat, and they breath, is the substance that is necessary for the genes, Phages and virus, and that at reproducing it in our F.P.A. has given place to the culture of these agents out of the live cells.

As we said in a previous work, when we talk of the "vitalized enzymes", the "nucleus" of DNA or RNA of the "vital units", will have numerous DNA or RNA qualitatively different in nucleotid sequences, because they have to serve as pattern, of negative, to the varied protean sequences of their different enzymes.

From this Dr.Ochoa had obtained to condense only RNA, starting from its elements, through an enzyme of the *Azotobacter vinelandii* - although he did not explain, at least in the press, what energetic fountain had helped condensing the quoted enzyme - without following in the synthesis any natural pattern of organization and he could not, therefore, - and because an enzymatic equipment joint to RNA and a suitable substrate was missing - unchain the "vicious circle" that originates life.

We have obtained the biological synthesis of DNA-Protein following the organized pattern of living entities and we have let loose the "vital vicious circle", creating living entities, as a result of the serial multiplication of pre-existent vital entities, passing them under the form of viric molecules through sterilizing plaques, that have introduced in the artificial medium of culture, that has no living cells, in the F.P.A. - a pattern of biological organization.

The aminoacids, purines and pirimidines, pentoses and free phosphates in the culture medium - in the F.P.A. - as a consequence of a careful hydrolysis, are used in a process that drives to the formation of DMA proteins by the viric elements inoculated through the sterilising plaque, in the process of their duplication, due to the utilization of the mechanism of oxidation of the live cells under the form of aggregated oxihemoglobine, that allows them with the help of the enzymes, to "burn" the carbonated chains in a process of aerobious glucolysis. At the end, all the simple elements have disappeared so as to integrate themselves in molecular buildings of live DNA protein.

When creating in the F.P.A. the same conditions of substrat that the virus use and look for in the live cell, we have given a mortal hit to a dogmatic principle sustained against all logic, and that has kept the problem of the virus in a complete artificial ground.

With this we would like to set definitively that neither DNA nor RNA alone, by themselves, can own duplicative capacity and therefore, life, if they do not carry joined to them an enzymatic equipment of double action, glucolytic and condensing, and much the least if they are not located in the substrate of a live cell or in our F.P.A.

This is showed clearly by the genes, virus and Phages, that are DNA or RNA proteins by chemical constitution and that need the substrate of the live cell, or our F.P.A.

Entities of less complexity, like the "vitalized enzymes" can duplicate, but they lack autonomy and they are unable to liberate energy, for which their duplication lasts what their potential accumulated energy under the form of DNA lasts.

If the idea that his molecules had life ever passed through Dr.Ochoa's imagination, he suffered a mistake, forgivable because of the conceptual situation of the world he lives, in which resists considering the accomplished facts discovered by us.

What does a spaniard who resists denationalization have to do in order to obtain that his discoveries - that have more scientific and practical size - are not condemned to schism? We do not know.

Let's occupy ourselves with Dr. Salk's affirmations.

Dr. Salk seems to have affirmed that he has detected the presence of the virus of cancer, as many others have wanted to detect it in works and declarations that lack originality.

But it seems overwhelming strange that he is able to detect - a feeling rather - the presence of the virus of cancer in which refers to transmissibility, as it was

demonstrated with the prisoners of Sing-Sing and other tests., that they would be completely not transmissible and, therefore, saprophyte for the inoculated and that he has not been able to detect, nor suspect the presence of simbiotic virus fatally present in all living organisms. So fatally present that without them animal life would be impossible.

It's the "living ferments" that, when the animal or plant dies, autolysate the body whose autolysis can be avoided through the inhibition of their enzymatic equipments with formol, as the bodies in the anatomic departments, or with cold, as the well known mammut of Siberia, or with stabilization in plants in order to keep their glucosides and the rest of their active principles of a sure hydrolysis.

Could Dr.Salk also tell us which virus, following the current concept he has from them, can produce inside the cancerous cell, the synthesis of the dextrogiro aminoacids, when they only have enzymes for catalyzing their synthesis, agents of the group Streptomyces, sporulated aerobious bacillus and some fungus?

Some time ago we cleared that the majority of the benign tumours were due to submicroscopic forms of Streptomyces that if their are recovered in artificial culture and are injected, reproduce the tumour and are able to stay in latence state for a long time, which demonstrates that they do not act joint to the genic matter of the cancer cell as matter belonging to it and the malign, to a mutation of these Streptomyces: the Scheurlen bacteria in its varied antigenic lineages, which correspond, all of them, to the type of Bacillus Mesentericus Ruber, more or less pronounced.

The germinal matter of the spores of these bacteria is obtained by "polarized" cells by lesion of their genic equipment with own matter which leads to their cancerization. But the isolated bacteria in culture, and its spores as well, are innocuous, and do not determine any type of tumouration, unless the transmission of their genic matter to a "polarized" cell takes place.

IF we inject more or less hundred spores through vein to a rabbit, after two or three months, they keep on circulating, because "in vivo" they can not go back to their bacillar vegetative forms, because they would be destroyed.

The mutations of Sterptomyces to bacteria of Scheurlen are produced in a certain number of cases, in tubes sowed with Streptomyces and immediately closed under the flame of the welding torch, showing up on colonies of Streptomyces sowed until one or two months after the tubes have been closed.

We have to admit as a consequence, that a Streptomyces that is acting in a fibro cell or miomatose in a submicroscopic shape can mutate to germinal matter of the bacterium of Scheurlen, the process getting malign if the cell admits this matter as own.

To make it more abundant there is the fact that certain antibiotics produced by Streptomyces act against other Streptomyces.

We had the occasion of testing it on ourselves when we inoculate ourselves by accident with a Streptomyces isolated from a fibromatose process of uterus.

When some weeks had passed by, a bulk started to form in the left wrist that with stationary periods went on growing during two years.

This same streptomyces killed rabbits inoculated intracerebral via in two months, existing in all cases a brain tumour.

One day, at treating ourselves a bronchitis, it disappeared completely, and after three months it grew again more violently.

So, we tried with antibiotics of a wide spectrum that showed completely non efficient, but when we took Bristaciline again in a more continuous way than the first time, it disappeared until now.

After we have seen disappear fibromes and uterine miomas that produced strong metrorragias with the administration of only two flasks of Bristaciline.

The gynecologists should test widely our observations.

But there is another curious case and it is that the antibiotics produced with Streptomyces do not attack their mutation forms, the sporulated aerobious bacillus, because if the Scheurlen bacteria is born by mutation on colonies of Streptomyces it is because it is not attacked by the its "mother" streptomyce.

A pharmaceutical speciality is based on this too. This is made with spores of the Subtilis bacillus - the bactisubtil Leti - that serves in the long treatments with Bristaciline, Streptomycine and Clorofenicine in order to substitute the destroyed sensible intestinal flora, by another flora that is resistant.

And the Subtilis bacillus resists the action of antibiotics elaborated by Streptomyces producers of Bristaciline, of the griseus, producer of streptomycine and of Venezuelae, producer of clorofenicine, because all of these Streptomyces are close "relatives" of the "mother" Streptomyces of the Subtilis bacillus, of which it is probably originated as the Scheurlen bacteria, by mutation.

However, we see how an antibiotic produced by a Streptomyces like Bristaciline has an activity against certain benign tumors produced by submicroscopic kinds of Streptomyces, which demonstrates that in nature, in the ground, there is a sordid "war" among them.

Let's take advantage of this antagonism in the treatment of benign tumors, since the entity works as independent matter from the benign tumoural cell.

As to the treatment of the malign we have to act through the vaccinating action of the genic matter of the Scheurlen bacterium, because this genic matter does not work autonomously but joint as own matter in the chromosomes of the cancerous cell.

The fine sensibility of Dr. Salk has felt the necessity of using the selective action of a vaccine against cancer but he has been mistaken in the ethiology.

Could he show us some microphotographies of cancerigen virus or indicate us how he is going to manage for handling them, without mistaking simbiotic virus and carcinogenic virus-genes?

We know that as long as he does not follow our techniques he will be not in conditions of doing it. We make the statement that there are tumoural virus that are as transmissible as the rabbit mixomatosis and at a minor scale in other neoplastic processes in animals.

It is also possible at a very reduced scale that some humans could be, but the greatest majority of them have as causes the ones underlined by us in the works of the first series and in this one.

Neither does it hide from us the fact that the Streptomice works in benign tumours as a pseudovirus nor that the Hogkin lymphogranuloma and in some types of leukemias, the aggregated fraction to the cellular genes comes from the Koch bacillus, also close in relationship to the Streptomices. We also know that there are matter that are different from an antigenic point of view inside the Scheurlen bacterium, but we refuse the existence of the virus of Cancer, at least according to the current scheme that the rest has about them, including Dr. Salk.

In one of our works we also fell into that mistake, because as we had worked with more intensity with blood of cancer patients, lacking other matter, we thought that the simbiotic virus that grew in our F.P.A. (Artificial protoplasmatic fluid) had something to with cancer.

After we checked that they existed in the blood of all persons and animals.

After taking away his reason to Dr. Salk, and with him to all that have affirmed the presence of the virus of cancer in a simple way, we are going to try to look for an approach in order to understand the reach of the problem.

In the previous works we said that a gene or a virus was only different from the other in the fact the one is wrapped by the untouched nuclear membrane that stops the passing of the coenzymes and the other is outside it.

This concept has been modified due to experimental demonstrations the following way: If we use only the hydrolyzed fraction of F.P.A. inoculate in it a drop of virulent matter, containing virus of any kind, the viric molecules do not multiply, but they do it actively when we add blood hemolized through sterilising plaque.

This demonstrates beyond the limits of requirements that the presence of combined oxygen, that is used in the oxidation process of live cells, is absolutely necessary for the autosynthesis process of the "vital units".

It is logical to think, therefore, the chromosomal equipment of the cancer cell "breaths", in other words it uses oxygen for a glycolytic aerobic process, which gives it enough energy for duplicating without rest.

But the genes do not breathe since there is no respiration inside the cellular nucleus.

We arrive then to the obliged conclusion that "gene that breaths" is not gene but virus.

So then, the genic equipment of the cancerous cell, because of the fact of using oxygen, being able to provoke an aerobic glycolytic process and having therefore own energy for automultiplying actively, has all the characteristics of a perfect viric equipment.

The immediate consequence of all this is that the nuclear membrane that normally only allows the passing of the oxidant agent during mitosis, stopping after its path, is permanently altered in the cancerous cell.

It would talk against the aerobic glycolysis and in favour of the anaerobic glycolysis the fact that in the malignant tumours an evident quantity of lactic acid concentrates, since a great number of normal tissues as liver, spleen, etc. do not produce lactic acid in aerobic or do it at a small scale.

On the other hand, in a reduced number of them, like malignant tissues, the production of lactic acid reduces at passing from anaerobiosis to an oxygen atmosphere, but this reduction is less than in the previous cases and they produce a relatively great quantity of lactic acid in aerobic.

In other words, their aerobic glycolysis is high.

This inhibiting action of oxygen, of decreasing the consumption of glucose and the production of lactic acid is known as the Pasteur Effect.

It is common to express, as an index of this difference, that the tissues in which the reduction of the consumption of carbohydrates is great and also the production of lactic acid when they pass from anaerobiosis to aerobic, it as a high "Pasteur effect."

The circumstance that the malignant tissues and some very particular normal tissues present a low "Pasteur effect" is due to the fact that in the oxidations that take place in aerobic the inorganic phosphate decreases in its cellular concentration because it is used in the formation of phosphoric unions of high energetic contents.

This decrease brings out as a consequence that the glycolysis reactions that lead to the formation of lactic acid and for which the inorganic phosphate is necessary decrease in intensity in the aerobic.

When aerobic comes the inorganic phosphate accumulates, because many fewer phosphoric unions of high energetic contents are formed. The glycolysis reactions

increase and for this reason the production increases and the accumulation of lactic acid too.

In favour of this hypothesis there is the fact that determined substances that inhibit the formation of phosphoric unions in the oxidation processes also inhibit the appearance of the "Pasteur effect", when a tissue passes from anaerobiosis to aerobiosis.

With these data the scheme comes up clear:

We have in the nucleus of the cancerous cell a chromosomal equipment that is not protected by an untouched nuclear membrane.

(One frequent image of the carcinomas is the presence of several chromatinic blocs lodged irregularly inside a nucleus which lacks membrane. Ewing Oncology)

That as a consequence, it has passed from an energetic system of anaerobious glucolysis to a very energetic system of aerobious glucolysis.

But the "Pasteur effect" that had to have as a consequence the disappearing of the production of lactic acid because of the changing from anaerobiosis to aerobiosis, is inhibited in this case in quite a high proportion due (as we explained in part 17 of these works) to the fact that the strange fraction added to the genic equipment owns in its dextrogiroproteins inhibitors of the dealers of the phosphorylations and we have seen that "determined substances that inhibit the formation of phosphoric unions in the oxidation processes, inhibit also the showing up of the "Pasteur effect" and therefore, it is perfectly understandable the coexistence of an intense aerobious glucolysis with an accumulation of lactic acid in the cancerous cell.

But we are maybe facing the fact that it is probable that the brake imposed by the "Pasteur effect" to the aerobious glucolysis locates the carcinogenic genes in an intermediate energetic situation between the anaerobious glucolysis and the aerobious glucolysis.

In other words, between the energetic of the normal cells and the one of the simbiotic and pathogenic virus.

The first one would allow the genes to serve the enzymatic syntesis, but not its duplication, circumstance that maybe is also due to the fact that the nuclear membrane stops the arrival of the purines, pirimidines and desociribose to the chromosomes during the normal mitotic interphases.

The second one would allow the virus to duplicate actively as it is demonstrated in the cultures of the virus in the F.P.A.

And the position of intermediate energy that would allow the virus-genes of the cancerous cell to keep a rythm of duplication, much less intense than the normal virus and that marks the tumoural processes with a characteristic seal of relative chronicity.

Chronicity that does not affect the tumoural virus, that, as in the mixomatosis of the rabbit, act at full aerobiosis with nil "Pasteur effect" because they work independent from the cromosomic equipment, which allows them to duplicate actively determining an acute tumoural process.

It is known that the anaerobious glucolisis in normal conditions is very weak in the cellular nucleus since if cells are put in conditions of anaerobiosis, the 80-90% of the glucolisis is made in the citoplasm and the nucleus is quite more than 10-20% of the cell generally. Because of this we have to think that the cell limits the dose of available energy by the chromosomes, in normal conditions, through a selective mechanism located in the nuclear membrane.

The appearance of the first malign cell carries with it the showing up of dextrogiroproteins in it and the appearance of aerobious glucolisis because of the loss of control of the action of the nuclear membrane on the limitation of available energy by the normal nucleus.

It can be established that first its genes acquire these dextrogiro proteins - whose origin we have already analyzed - that alter the normality of the nuclear membrane and that this alteration carries out as a consequence the appearance of aerobious glucolisis and that this leads to an considerable increase of the available energetic potential for the cromosomic structures, which leads to a constant cellular duplication.

So, then, there are only two options:

Either we are right in our conception of cancer, supported by multiple investigations done during more than twenty years and the genes or chromosomes of the cancer cell have admitted strange genic matter that has modified the integrity of the nuclear membrane and therefore its biochemistry, becoming the genic equipment a viric equipment, in which case, acting through vaccine-therapy it would let out the strange aggregated fraction that made them mutate, going back to normality the nuclear membrane, transforming the carcinogenic virus genes again in genes, or, disappearing the altered cells by autolisis after having disappeared the strange fraction, or, the cancer cell is the result of the conversion of a normal genic equipment, in a viric normal equip through an irreversible permeability to the oxidant action of its nuclear membrane, in which case we have to say good bye to finding a solution, because we will never be able to destroy a normal viric equipment, without destroying the living being that carries them.

Fortunately there are many signs that we are right.

And this firm hope of obtaining immunity through vaccines against tumoural processes is based; besides that cures obtained with the treatment of neoplastic patients, in the following reasons:

Only very few pathogen have a structure that is totally strange to the organism they attack.

The great majority are mutated simbiotes because they have added an enzymatic or genic fraction that came from a bacterium.

We have the previous presence of a bacterial simbiote: the colibacillus that accidentally through a mutation of characteristics becomes pathogen.

The bacterial fraction added to the simbiote virus defines it in its pathogenic action, linking it to the same tropism that the bacteria that produced the mutation had.

If a bacterium from the respiratory tree is the one that does the transference to the simbiote virus, this becomes virus of cold, flu virus, or virus producer of atypical viral pneumonias that will only act through tropism acquired in the place the bacteria that made it mutate acted.

In grave virosis the mutated simbiote takes the total place of the not mutated simbiote, which brings the deaths of the patient.

But in all these virosis it is possible to get immunity that will consist in acting specifically against the aggregated fraction to the simbiote virus, which is possible because it is an heterolog fraction and therefore, normally antigenic, respecting the simbiote that goes back to normality, because as it is homolog matter it lacks the antigenic power for the specie that normally lodges it.

We see that the concept of the existence of the virus in cancer of Dr. Salk, repetition of great many news of the same kind, for a long time, without being any of them but mere supposition, has some points that touch our conclusions. The difference is maybe a matter of shades.

But in the practical field it does exist an infinite difference because we can show culture of simbiote and pathogenic virus in our F.P.A. that lacks living cells and show it through microscope and on the contrary, we can not be shown anything.

From what it was explained, two procedures of vaccination come up:

One, direct, using the genic matter locked in the spores of the Scheurlen bacteria, in other words its RNA-protein, that because it is, in the majority of the cases the strange fraction added to the genic equipment of the cancerous cell, could regenerate the mutated genic-viral equipment to normal genic equipment or to the autolytic elimination, as it has occurred in the cases in which these processes have been happily solved by vaccinotherapy.

And the other way is based in the following: if in our F.P.A. the simbiote and pathogenic virus grow, the carcinogenic genes-virus also grows.

In this culture they would multiply outside the cell, enriching the culture with genes-virus in a massive way and as these genes virus are carcinogenic because they carry a strange aggregated fraction that is heterolog and therefore antigenic, we would

produce an immunity through the same mechanism that immunity against mutated simbiotic virus is obtained, in other words, against pathogenic virus in general.

The obtention of these antigenes, free from cellular rests is no longer a problem.

Now we see clear that the "dream" of Dr. Salk and of many others, can become true, but it has been a long time since we have not got a tumour in order to prove this.

We have wanted to expose ourselves and have been seen as mad, going to hospitals and clinics asking for pieces of operated tumours, as already occurred in our first investigations.

But humanity can already count with a firm hope, because we are in the way of facing at a different level the final solution, with or without help.

Any doctor can send a piece of a tumour he has taken away, duely kept in fresh, punt in a formol solution at 2 per 1000 and with an antibiotic of a wide spectrum added, with the corresponding prescription so that we prepare him a vaccine through the direct procedure. Or blood of the patient taken out with a sterilized syringe in the sterilizing apparatus, without another addition, but shaking so that they avoid the coagulation and the corresponding medical prescription so that we prepare an autovaccine through the indirect procedure.

Our bi-professional sanitary condition backs legally its preparation, unless the legislation is modified in order to stop us.

Besides that it would be free as long as our economy is able to bear the elaboration expenses.

The next chapter will be about the preparation of the "artificial protoplasmatic fluid", or "F.P.A.", definitive weapon with which all will be able to cultivate virus of all kinds. We hope that a certain number of our compatriots decide themselves to do the necessary testing.

With very little work and very few expenses then can have the satisfaction of being the first in testing the initial steps of this new and great human acquisition.

It is an opportunity to finish with the national complex of submission to foreigners.

We have to have also a little scientific seriousness and stop giving opinions about experimental questions until they have not been tried to be reproduced. After, the results are confirmed or they are denied in public. This is the correct thing to do and what nobody tries to do. The previous prejudice that paralyzes the testing is characteristic of speakers and not of investigators.

So, those who have questioned us from the shadow, try to finish with us, in other words, with our experimental reasons, or open the way to what you will not be able to stop for more time.

So, be courageous, and go ahead.

But, in case there were somebody impatient, or any modest investigator that wanted to start testing our affirmations, we are going to give them the simplest technique of natural production of F.P.A. with which they will be able to grow simbiotic virus.

The technique is the following:

Prepare yourself a menu made of thymus, bovine or pig testicles, liver and fish eggs, preparing it to one's own taste.

Eat of this menu till you get fed up and wait until gastric and pancreatic digestion.

Calculate when the digestive hidroyzed has invaded the circulatory current and take out 15 cc of blood.

Put the 15 cc of blood in a tube that has 20 to 25 cc of distilled water, putting it in the fridge until complete emolysis.

Then you can centrifuge to take from the hemolyzed the globular stroma so that you can filtrate better.

Filter it through sterilizing plaque, on a matrass and with a sterile pipe split the filtrate in three equal fractions en two steril matrasses, while on fraction is left on the matrass on which the filtration was done.

We will have three matrasses with 10 cc each.

We put the first one in the fridge at 0-1° C and will remain clean and clear during a long time, but it will get muddy if it gets up to 37° C more or less.

The second one is formolized at 10-15 per thousand and will remain clear indefinitely, even at stove temperature.

The third one is passed directly to the stove at 37°C and will start to get muddy quite fastly.

If you have now the curiosity of examining the muddiness at you can say hi for the first time to some unknown entities, of which you will soon become a great friend.

I introduce you to the simbiotic virus inoculated through the filtrating plaque with the same hemolized and live, giant molecules generated by biosynthesis of DNA-Protein.

Without doubting do the reaction of Feulgen, whose techniques for these cases we will give and you will prove that its chemical nature is the same as the one of genes, virus and Phages.

The composition of the menu is explained, because we do not try to sustain vegetative life of any cell, but to synthesize biologically "symbiotic ferment-virus" and these, because they are DNA - Proteins, need an hydrolyze of DNA and matterl proteins in which they are very rich the components of the menu.

In order to obtain an intense culture you would need to take a menu of more than 3 kg in all, and as this is not possible, the ones that are not impatient can wait until very soon, when we give them the technique of preparation of F.P.A. until then.

CONCLUSIONS.

1.- We had to create a culture medium which we call "artificial protoplasmatic fluid", in which, because we create the same substrat conditions that the live cell has, we can cultivate all class of filtrable virus in the absence of live cells.

2.- That such "artificial protoplasmatic fluid" is the result of the union of two factors. First: a pine, testicles, liver, egg fish and brewer's yeast hydrolyze obtained following the process of digestive enzymatic hydrolysis and another part of phosphoric-chloridric hidrolize in prolonged boiling. This hydrolyze is sterylizing. Second: hemolized blood.

3.- That through this new culture procedure, the existence of a symbiotic virus in all animal species became evident.

4.- That in this artificial medium of culture it is possible to multiply chromosomes coming from the cancerous cells, eliminating the rest of the cell, which can lead us to the preparation of anticancer vaccines, because they are mutated cromosoms through the acquisition of strange matterl and possible of antigenic nature.

THE MECHANIC OF THE CELLULAR DIFFERENTIATION IN CELLULAR COLECTIVITIES

1961

The Summer vacations that have medical and experimental inactivity have advised us to leave for the beginning of the Academic Course the publication of the works that are purely technical, so that they are used in laboratories and their march is followed.

But meanwhile, an enormous quantity of problems that are affected by our investigations are here, for explanation, and we have to take advantage of these moments in order to go on introducing the concepts reached.

This is a field where it is possible a slight mistake in the discussion ground, but not in the global structure.

Each animal or vegetal species has in each cell a determined number of chromosomes and each chromosome, determined number of genes.

All the genes that are going to determine the formation of a new individual are represented in the two gametes that are going to join sexually.

When two sexual cells join, a somatic multiplication of the cells starts and one experiments a wide morphological and functional diversification.

But it is strictly certain that each of them, no matter how diverse its morphology and physiology are, has received the same quality and quantity of genes.

Where does the mechanism of cellular differentiation lie then? This mechanism changes the different groups of cells representing anatomic and physiology specializations that are different, give birth to organs that are completely different and at last the cellular colectivity: individual.

Some theories have tried to explain the mechanism of this differentiation, without convincing anybody.

We are going to start, then, for our arguments on mechanism of cellular differentiation, from the certain base that all the cells of the animal organism are equivalent in what refers to genetic patrimony. Their morphologic and physiologic differentiation is no illusion. The cells go on losing little by little their not differentiated character and get each time more specific characteristics.

It has been experimentally demonstrated that the embryo cells and zones lose with time their unspecific quality and walk insensitively and fatally towards specialization.

Cells that in normal development were destined to become epidermis, if they are taken out of their normal position before they have gotten their differentiation and are put to regions destined to create nervous tissue, can alter their destiny and become nervous cells.

However, in a certain determined moment this transformation can not take place and the epidermis cells will originate epidermis cells.

There is, then, a determined moment in which it is impossible to go back and then they walk convinced orientated towards a specific destiny.

But the mystery of differentiation can not be looked for in the cell globally considered, but penetrating profoundly in the intimacy of its gene equipment, which is the set of lives that are able of autonomy, but installed in the cell in associated "vital units".

The cells are as the hilly and visible ants' nests of the termites, the genes are the termites.

The ants' nests have been built by the termites, as the cells, by the genes.

Like in the termite and bee colectivities there is a specialization in the gene colectivities that make the cell, but while in the insect associations the specializations are made by groups, in the gene colectivity there is only one gene for each specific mission, besides the common functions through which each one has gotten vital autonomy.

But we have to go deeper and analyse not the gene equipment as a whole but each gene in particular.

Let's start examining the individual characteristics of the free "vital units", in order to get little by little a deduction of what occurs when they associate and form cells and what occurs when the latter differentiate in specific anatomic and physiology functions for making cellular colectivities: animals and plants.

Let's start the study of the "vital unit" considered, the way it was explained in our previous works and confirmed by Finch and Klug, in their structure by roetgnogram at the University of London, about the child epidemic polio virus.

The viric, or phagic, or gene molecule is a spherule of DNA splashed on its cover by 40 - 60 protean fractions set, that in our opinion, are also enzymes.

It lacks, as it can be easily understood, hydrolizing enzymes, so, for it is impossible to use directly the protids, polipeptides, polisacarids, tri and di sacarides and lipids.

It needs matter that is completely hydrolized as the one of the digestive hydrolisis.

It lacks also, the possibility of fixing oxygen, because this has to be supplied in a very special activation state, because the oxygen spread in plasma or in any other liquid, can not be used by it.

So, the virus has to be obliged parasites, or simbiont saprofites, because outside the live cell, or our F.P.A. they can not live and in nature they do not find other similar sustrates.

It is therefore their aim, in general terms, to achieve autonomy that allows them to use oxygen in order to set on glucolytic procedures that give them energy for duplication, but this aim can only be achieved by starting a protoplasmatic structure around them, in other words, becoming cells.

But the enzymatic poverty of such elemental beings stops it and in order to achieve it they have to associate in a great number, each of them supplying characteristic enzymes, specifically different, because the colectivity allows only one representing each speciality.

The work in a team of multiple enzymatic equipments, supplied by numerous "vital units" that are associated gets the building of a protoplasmatic structure that fixes oxygen and supplies it to them, activated.

With this they have arrived to the first stage and have become isolated cells that are little or not differentiated.

After, when they obtain the cellular colectivization, the second stage is accomplished and the cells differentiate in multiple vegetative missions, according to the gestation of the new being.

However, a differentiated cell like the spermatide originates a process of haploidia, a cromosomic reduction, that when it copulates with another haploid cell, the ovule give origin to an undifferentiated vegetative cell.

So, the haploidic process does not only represent a cromosomic reduction but a return to un-differentiation.

The "vital units" have also obtaining, by integrating themselves in cells, a digestive mechanic that gives them hydrolized matter that is essential for them, obtained from complex digestible elements.

This type of digestion in the unicellular being - because in the pluricellular one is done by specialized cells - is possible thanks to the joint enzymatic action of all the genes associated and thanks to the energy obtained, it is derived in this sense, instead of being used exclusively in duplications by the "vital units", as it is when they are isolated inside the live cells or in our F.P.A.

Colectivizations imposes its rules then: free genes, or virus tend to active autosynthesis as the only manifestation of energetic use. The gene colectivities tend to use this energy in vegetative tasks: digest and breath.

This equilibrium regulates life in the cells, like the one of the individuals, because life is no more than an equilibrium between vegetative and reproduction, between ingestion and copulation, between the leaf and the flower.

The sexual needs the vegetative as the gene, the cell.

But, given the volition of building associations for creating cells of the own genes, these are the ones that voluntarily limit their doubling activity facing the multiple advantages that they get of such colectivization and for this they get inside the nuclear membrane, voluntarily, which limits them the oxydation mechanisms at reach and, as a consequence, decrease their energy, by passing from a germinal mechanism of aerobicious glucolysis to a somatic mechanism of anaerobious glucolysis in which they only duplicate their enzymatic proteins, that make the vegetative task of the cell easier.

So, the elementality of the gene equipment of only one "vital unit", with its lack of autonomy pushes the tendency and the showing up of an unicellular being and the unicellular being tends to cellular association and when association has a certain degree of complexity the morphologic and physiologic differentiation shows up.

Let's analyse now the gene equipment, considered as a whole, of the colectivized cells and let's see how the cell to which they belong differentiates and specializes.

Differentiation starts in a high degree in the same gene equipment of the non differentiated cell, because two "vital units" are not admitted if they have identical enzymatic equipments.

We can talk, therefore, in the first place of gene differentiation in the cell.

In the second place, we have to explain now the mechanism of cellular differentiation and for this we are going to reason the following way:

We have gone out of the enzymatic simplicity of an isolated "vital unit", and even of the elementality of the gene equipment of the unicellular beings, finding ourselves now with the one of the collectivized cells of superior beings, differentiated and specialized in a high degree and as a consequence with great quantity of chromosomes that suppose greater quantities of genes.

Better said, the high specialization is the consequence of the high quantity of genes.

So, each animal specie or vegetal specie suppose in the first place gene collectivization to which goes an obliged gene differentiation and in the second place a cellular collectivization to which goes united a cellular differentiation.

Let's go deep down the intimacy of the mysterious mechanism of cellular differentiation and for this let's see how two heterosexual gametes join their equipments of haploid genes, giving place to the first somatic cell of the new being.

We have now a non differentiated cell with 30-50 chromosomes and 300-800 genes, each of them with their enzymatic equipment acting freely.

In this cell all the different enzymatic functions are present. Those are the ones that later have to be specifically assigned to each group of cells, to each organ, to each gland.

This cell is a summary of all the activities of the complex being which they are going to produce.

During great part of the embryo development, these genes go on doing total and freely their enzymatic functions, until the cellular differentiation starts.

There is a moment in which they can choose specialization, but after that moment they are fatally condemned to have the speciality for which they have been assigned.

The embryo cell represents the "encyclopedist", the differentiated one, the "specialist", and the specialist is obliged to limit its field of action.

So the enzymes that are not going to be necessary to the cell in its specific mission that has been assigned to it are blocked.

The cancellation of the enzymes or enzymatic groups that are not necessary is done filling in holes of the DNA, where they are synthesized by polipeptides that are very basic: the histones, which serve to join them in groups and by inactive DNA, in other words, not belonging to the gifts of DNA of the "vital unit", partially blocked.

So, the genes of the differentiated cell appear, not anarchically loose, which could occur if our point of view was not true, but lineally chained in chromosomal structure.

In each specialized cell the different genes are cancelled; the different enzymes or enzymatic groups too. Other enzymes which are specialists are set free. This originates not only its biochemical and physiological differentiation but also its structural, morphological and anatomic differentiation too.

Only two common enzymatic complexes remain free in all of them.

The one that allows them to perform the glycolytic processes necessary for getting energy to be used in the vegetative task of synthesis and supplying of enzymes to the cellular set and the one that allows them to autsynthesize when the circumstances allow so.

If we put an example, we can say that the cells of the thyroid gland have the enzymatic equipment that synthesizes thyroxine free, while in all the rest of the cells of the collectivity, the enzymatic equipment is blocked and cancelled.

It is also natural to think that the enzymatic synthesizing equipment of the thyroxine is not complete in only one gene, because the "vital unit" does not need the thyroxine for anything, but spread in many of them.

Because of this blocking and unblocking action, infinite combinations result and they lead to the most subtle cellular differentiations.

So, the limitation of the most complex enzymatic activity of the numerous cellular gene equipments creates the cellular morphology and physiology and defines it in its specific determinism.

But the gene collectivity is not static in its specificity, because if it has been submitted to the vegetative and has become its slave, the vegetative is also of the environment and they have to modify its specificity when the conditions of the medium modify the vegetative conditions.

So a bacterium can consume of a mixture of simple sugars, or even of a branch mixture of the same sugar, one of them, and when this has been consumed, there is a temporal period of inactivity in which the other continues without being used, for being consumed after.

The keeping up of vegetative, habitual link, imposes an adaptation process and certain enzymes have to be unblocked if they are blocked because they have not been used; or they have to be acquired.

If the latter is not easy, the monosaccharide remains without being used.

If an animal species hides in the obscurity during several generations, it loses the eyes or these become rudimentary.

What does the cellular colectivity want cells specialized in one function that is not done for?

Slowly, the specialty disappears, like the specialists in venereal illnesses almost disappeared after Fleming's discovering.

The old proverb "Organ that does not work atrophies" has to be changed for "Enzymatic activity that is unnecessary, is cancelled", that backs this other one: "Enzymatic activity that becomes necessary, is created".

And, as this new enzymatic activity is set in the genes and belongs to them, it is transmitted to the children.

Slow changes in the environment, were translated in slow vegetative adaptation changes, generated by the showing up of new enzymatic activities and missing of others.

Or what is the same: the chisel hits of the environment, making cellular specialization appear and disappear went on morphologically and physiologically carving the species.

We are, then, at the presence of a new theory about cellular differentiation.

Questionable?

Let's wait until the reasoning confirms it or the remarks invalid it, but there it stays as a "summer dream".

THE CONTROLLED DUPLICATION IN LIVE CELLS, 1962

Waiting for the previous works to be published, we have kept the present, and during the time we have kept it, we have arrived to conclusions.

We can summarize the latter the following way: the cell is the result of a symbiosis established between two categories of beings with autonomous life which complement each other to such an extent that life is impossible when the other one is not present. These are the nuclear entities and the citoplasmatic entities. It is the symbiosis between breathing and fermentation between beings that only breath getting into the citoplasm as breathing enzymes and forming part of the reticular structure of it as the citochromooxidases, which are entities with conditioned autonomous life and not inert enzymes as they were believed until now and entities that kept the morphology and the physiology of the specie, resistant in the nucleus and that serve all the enzymatic tasks of hydrolytic and condensing type etc..

Both beings develop by autosynthesis, independently from F.P.A., with certain special additions that will be explained. We have destroyed, then, the symbiosis and we have cultivated them independently the ones from the others in the same culture, because in the F.P.A. each group of entities finds what the other group gives to it.

The work that we had already written and that we enclose after these lines stays incomplete, but we will try to complete it in a simple way, affirming that the cytoplasmatic symbionts, in which until now had it been impossible to find signs of sexuality, through the sexual cell build the cytoplasm of the somatic cell of the new being. They would be porters of the cytoplasmatic heritage and they would be entities that are almost exclusively protean.

On the other hand, the other group of symbionts, the genes, is composed of DNA and proteins, and we can arrive to the conclusion that DNA leads morphologically and anatomically the specie and the proteins lead it physiologically.

An alteration in the DNA before the cellular differentiation, or even after, produces anatomic or morphologic monsters by alteration of the distributive and topographic distribution of organs. But these monsters are not physiologic monsters; they are physiologically perfect.

On the contrary, an enzymatic alteration in the genes produces physiologic monsters like albinos, phenylpyruvic idiots, alcaptonurics etc. but anatomically they are perfect.

It is logical, then, that since species are collective entities of cells with physiological and morphological defined characteristics their genesis has to be led by specific patterns of DNA (enzymatic protein).

Entities that are unable of breathing, in other words, of making the oxido-reduction, addition of oxygen, elimination of hydrogen or separation of electron processes, at least by an aerobic mechanism, have to symbiotize with entities that do these functions.

Until the limit of vital simplicity they tend to keep stubbornly the specific type, as in the viric molecules, the phagic ones or in the unicellular beings with elemental gene equipment.

The virus goes to the live cell in search of the symbiont that breaths, they go looking for the cytoplasmatic symbiont of the genes because of the simple reason that they are of the same nature of the genes. And more, we can say they are free genes, as we demonstrated it in previous works.

We can go further on and say that the cell is the symbiosis between energetic entities, because they liberate energy of aerobic glycolytic cycles or cytoplasmatic entities, and catalytic entities or gene entities. If the energy and the catalytic action converge synchronizely on the suitable substrate, the vital synthesis emerges.

We are in front of the same problem of always, the bricklayer, the mixture and the bricks. If one of these elements is missing, the building can not be built, there is no building activity, and there is no vital activity. The scheme is getting simpler.

Maybe we get afraid of going on deeper until we clearly reach the concept of what we really are in this biological world, but this is to close the eyes in front of reality, it is to be coward.

If it is necessary to create another conformist philosophy, do so; but Humanity can not walk backwards.

We are as we were made, or as the environment allowed as to be. Let's accept ourselves and let's observe with open wide eyes to see how Creator made us. In our cellular symbionts a new page of Genesis is written down. We have the obligation of descypher it totally.

In the previous work we have explained the mechanism of cellular differentiation in cellular colectivities.

In the present one we are going to try to explain another series of circumstances that occur in the cells during the vegetative stadium of rest and the germinative or duplicant. Both aspects, provoked by different states of the energetic availabilities of the "genic vital units" are going to be explained under the new concepts reached. (This part is written before we arrived to the conclusion of the existence of the cellular symbiosis: citoplasmatic entities and nuclear entities.

In the step of the cell from the vegetive state to the germinative one, the genes become transitorily virus, and the cell adopts certain mechanisms for avoiding the loss of control on the multiplication of them.

These mechanisms only allow duplication and obtained this, they are converted in genes again, going back to the vegetative form.

This is the fundamental difference between the normal cell and the cancer cell, because the latter has lost completely the control action and can not get to make its virus, genes again, and therefore, it is unable to return to vegetative form.

We are going to analyse both cellular states and being seen according to the new form that we explained, we will arrive to the conclusion that many mysteries have disappeared with it.

In Nature there is nothing that is done without sense. Everything has to be investigated until we find out the reasonable explanation. We think that the explanation we give here explains perfectly why certain things occur in the cell when it is at rest and why other things occur when multiplication takes place.

Being this work intimately linked to the previous, we will try to eliminate from it what it is already explained.

We see in the figure how the structure of the cellular nucleuses is not seen , because all the descriptions of the "reticular and alveolar structures" correspond to apparent structures of fixed nucleuses.

During the metabolic state or intermitotic rest, the genes are spread all over the extension of the cellular nucleus, but linked by histonal bridges that are partially blockers of the enzymatic activities in the differentiated cells, forming a reticular or alveolar set where a structure is difficult to be appreciated.

In this situation, each gene, or group of them, dominates an alveolar or reticular space, full of nuclear juice, where the enzymes that they elaborate in this metabolic phase, are dropped.

During its permanence in the walls of the alveols or nuclear reticulas, the enzymes are in the same inactive form they were generated; in other words, as proenzymes.

The explanation is the necessity in which the same genes are, of protecting themselves against the same genes they elaborate, since, for example, the cellular desoxirribonuclease elaborated by them would destroy them if these enzymes were sent out actively, because of the same reason, and the pancreas has to send out the tripsine in an unactive way.

The nuclear juice, loaded of multiple and varied enzymes, moves selectively through the nucleols as general collectors for determined groups of enzymes each and these, once activated, are led through channel to the protoplasmatic microsoms and mitocondrias where they have to act.

The mission of the conducts is to preserve the protoplasmatic structure of the action of the enzymes, that this way are going to perform their functions in defined places.

The ones that are going to perform their mission outside the cell are carried out of it.

The simple matters that have to be "burnt" are taken to the mi chrosomes and to the mitocondrias. The ones that have to be condensated in order to build own structures by the interstitial plasma are taken there too.

It is curious the fact that the aminoacids that are to be condensed and the glucose have to be phosphorilated and they give the phosphorus in change of being integrated in chain, with which inorganic phosphate remain inside the cell for the A.T.P. regeneration, through other energetic processes, like the aerobious glucolysis. This occurs in the protoplasmatic synthesis process, which is an endergonic process that needs supply of ATP.

In this circumstance, the genes, in change of the supply of hydrolized and of the oxidation system that the protoplasm provides them, give to it their enzymatic activity, sacrificing their germinative capacity.

This activity is done "per se" by the virus, what allows them consecutive and uninterrupted duplications, while the substrates let them.

While the nuclear membrane remains inactive, the genes dedicate themselves peacefully to the team work of metabolization through the supplying of enzymes to

the cytoplasm, because a "relanti" in the supplying of oxidant enzymes, and, therefore, energy, subputs them in a state of lethargy that makes them forget their condition of "vital units", and, therefore, their multiplicative capacity. This "sleeping state" is the consequence of the anaerobious glucolysis to which they are linked.

But let's examin now what happens when the cell decides to duplicate.

First, the nuclear membrane becomes permeable to the protoplasmatic oxydant systems and the genes pass from a mechanism of anaerobious glucolysis to another of aerobious glucolysis. In other words, the genes become virus. Very tenous filaments appear soon: the cromatides, which carry bulks from length to length, the genes or cromomers.

The reticule is undone. The cromatides and cromomers, now transformed into virus, become double, due to an autosynthetic duplicant action because of the increase of energy.

While this occurs, the nuclear membrana has completely disappeared.

But the cell is facing a grave problem, after having produced the duplication of the cromatides and the cromomeros or genes. This problem is that if they go on having freely an energetic characteristic of virus, the duplication will not end there and the mitosis will go on taking place without stopping.

Does the cell have time to divide the protoplasm and to separate the two genic equipments and to reset two nuclear membranes before another duplication takes place? NO.

So it has to look for a special mechanism.

Quickly, after the duplication, the cromatides shrink, rolling in spiral, and at the same time, their thickness grows considerable, becoming cromosoms. It is enough to examine the scheme of a chromosome to realize what the mechanism which the cell uses in order to block the enzymetic activity of the viric "vital units" so as to transform them again in genic.

The cromatide or cronema, or cromosomic philament, loads itself of stuffing DNA which blocks almost totally the cromatide and the cromomeros, stopping them from an enzymetic activity in aerobious medium - since the nuclear membrana does not exist - which will lead them to a new duplication.

This mechanism takes place during all the time that the separation of the cromosomic equipments that form the genic gifting of the daughter cells and the restitution of the nuclear membrane in the two resultant cells.

Restablished this one, the blocking activity of DNA is no longer needed and the cromosoms disappear, resetting the alveolar reticulous to the resting vegetative cell again, on the cost of the disappearance of the chromosomes.

INVESTIGATION

What is life and what is death?

It is enough to look around or through a microscope in order to realize that life only exists in our planet (and others that gather the conditions for development of organic life) and that it comes from cells more or less autotrophic, belonging either to collective lives of superior beings integrated by complicated specializations of an initial cell, or forming isolated cellular beings

But the cell, as we have noted in our previous work, is the result of a symbiotic union of two types of "items" that need each other and complement each other in such a way that the life of both is fatally linked to the symbiotic union.

It is absolutely clear that any action that breaks such symbiosis produces an emergency state in the isolated "item", which drives it to a vital latency

The gene item rules the life of the cell, of which the cyto- plasmatic item is nothing but a passive item in charge of fixing oxygen through. Poor cytoplasmatic item if it stops breathing, in other words, stops the process, even for 4 minutes. The nuclear items devours it and, then, breaks the symbiosis bringing up the disappearance of this as an initial phase, the stopping of the emanation of the collective cellular line, in other words, the individual.

This does not mean that the cytoplasmatic item is directly destroyed by the nuclear items, but by the enzymes elaborated by them, that have passed through the little channels to closed compartments located in the cytoplasmatic item.

That is why when a phage penetrates in the cytoplasm of a bacteria (a phage is a free gene, of the same or of a similar specie of the one that attacks) and gets in direct touch with the cytoplasmatic symbiont, it hydrolyzes, transforming the cytoplasmatic protein in phage protein, because in this case the enzymetic equipment of the phage has not gone in through the little channels, but has got in direct touch with the protean structure of the symbiont, for which it hydrolyzes it in order to resynthesize.

From here it is clearly deduced that the cytoplasmatic symbiont goes through grave danger if it gets in touch with the nuclear symbionts and that why they have to be separated from them by a membrane and receive the enzymes elaborated by the genes through channels and located the for their utilization in definite places.

That is another function of the nuclear membrane.

Of this series of circumstances results that if we take as the most elemental manifestation of life, multiplication, and this is not possible without the symbiotic coupling of the two items, life results of the symbiotic union.

To say it in other words, a virus isolated by ultra centrifuging, is an item without life because it is not at the presence of the cyto plasmatic symbiont and the same occurs

to a virus or to a gene in a cell that has stopped" breathing". But it is enough to put a virus in front of the presence of a cytoplasmic symbiont for its "breathing", in other words in the cytoplasm of a cell of a receptive species so that it multiplies immediately in an active way, passing from latent life to active life.

That is the reason why the uni and pluri cellular beings have a vital autonomy and this is why the genes, virus and Phages have conditional life. We have been able to demonstrate it thanks to our F.P.A., ("protoplasmic artificial fluid") and thanks to the reason that we have been little taken into account, we have walk towards the fountains of life only. This is an intimate satisfaction that compensates us greatly of other many bad moments.

It has come out, definitively, that if we grind cells with a homogenizing, add distilled water, mix this with F.P.A. and then we filtrate this through sterilizing plaque, an active synthesis is produced by condensation of the simple elements of the F.P.A. This causes three types of structures. The three begin under the form of free filament reticules of protein nature, but one of them originates spherical and static feminine gametes, another, small and mobile masculine gametes and the third one remains sterile.

The reticular structures are protean. Both gametes are DNA proteins.

We have, then, loose and with independent life in the medium, the genes and the cytoplasmic symbiont.

The fact that the cytoplasmic symbiont auto-synthesizes being of protean nature, locates us before an autonomous genesis of proteins, in other words, of a being with own life of protean nature.

It comes out from all this that if the ones that until now have been considered structural enzymes of the cytoplasm, like the citro-cro-oxidase are able to auto synthesize in the special conditions that our F.P.A. gives them, and, as a consequence have life, although this is conditioned, life is born from more elemental structures than the ones considered until now.

Life itself of superior being is conditioned by multiple factors too. By example, that the sun did not come out, that the quantity of atmospheric oxygen decreased, that the radiations increased, that the earth came closer to the sun some millions kilometres, or that it went farther, that the sun heated until 80°, etc, etc.

But we are only interested in analysing which are the minimum conditions that one symbiont gives the other so that from the union of the factors supplied by both springs up the vital fluid of the cells.

We have said in previous works that if we mix F.P.A. with hemolysed blood and we pass the mixture through sterilizing plaque, in the complete clean and transparent filtrate an active synthesis is produced that takes to a quick clouding of the water in a few hours time and this clouding is not produced if we formol or if we put the filtrate

on the freezer, because in one case the enzymatic action that decides the auto synthetic is inactivated and in the other, it is stopped.

If instead of hemolysed blood we mix with F.P.A. serum or plasma and we filtrate, the filtrate remains clear.

This means that the genes, virus and phages can not use the oxygen spread in the plasma, while they are able to use the one joint to the hemoglobin.

But if we give a chance to reasoning, we arrive to the following conclusion:

Hemoglobin does not arrive to the cells, because its mission, of all known, is to transport and to give to the poor plasma the solved oxygen. When this becomes interstitial it takes to the rest of the tissues the oxygen that rests in dissolving.

After, an hepatic cell, by example is respect to this circumstance equal to a bacteria in a liquid, in other words, both cells, the one belonging to a cellular community and the unicellular being take the oxygen from the one spread in the liquids.

But as genes live statically, to doubling effects, in the cells the virus multiply in them and to the cells hemoglobin

does not arrive, it was logic to think that there is an independent mechanism of the hemoglobin that gives usable oxygen to genes, to the virus and to the phages, because besides the bacteria in which the latter multiply lack blood and therefore, hemoglobin.

Basing us on this reasoning, we have added to F.P.A. homogenized of cells, plasmalyzed in distilled water and filtrated through sterile plaque and without needing to add hemolyzed blood the most active synthesis has taken place where the two types of symbiotic items are clearly differenced.

Definitively, we have active synthesis with F.P.A. and hemolyzed and active synthesis with F.P.A. and homogenized of cells.

On the contrary if we mix with F.P.A. plasma or serum, the mixture stays different.

And this had to be like that, because if this process of active protean synthesis and protean DNA took place in blood plasma, the beings would die of embolism at the first meal they took. It is enough to observe the more active of the two first cases to realize that this would fatally occur. This is why when there is hemolysis, the hemoglobin degrades quickly to pigments or it has to be eliminated fast through hemoglobinury. That is why also that the red globules go in order to die inside the endothelial macrophages that degrade fast the hemoglobin pigment and so are eliminated finally as bile pigments.

In other words they are instituted in ordered patterns of specific morphologies, but life does not depend on them.

And therefore we decide that amorphous life does not need nucleic acids.

But amorphous life, in other words, of items with no limits made by cellular membranes, is asexual, and the survival by adaptation to the medium of the best gifted requires morphologic and physiological dynamics. Life requires limits to be and separated of the external medium, and moving in search of a substrate, and the simple presence of a cellular membrane or of a flagellum implies already the representation of these morphologic characteristics in gene D.N.A. or R. N. A.

Because of this, the morphologic adaptation and physiologic adaptation to the medium is not given to the symbiotic protean

item, but to the nuclear symbiotic item, sexed dynamic and

DNA protean, because sexuality gives out diversification and before the circumstances of medium emergency only the best doted survive. Life, due to the information received of the medium by the DNA protein, changes morphologic and physiologically, adapting itself to the narrow alley through which medium circumstances oblige it to circulate. Thanks that the DNA protein is consequent, species will go on adapting themselves to step by step medium changes with step by step physiologic changes. DNA protein accepts the slavery of the physical world and thanks to it the species evolved.

Considering again the resultant consequences of the modification made in FPA at mixing with this homogenized medium of cells instead of hemolyzed blood results that the breathing cytoplasmatic enzymes that go through de sterilising plaque and coming from the cellular homogenized manifest themselves not as inert enzymes but as items able to multiply but at the same time put the oxygen fixed by them to the reach of the genetic symbionts and these multiply without the necessity of adding hemoglobine.

But we have arrived further at a completely revolutionary demonstration but of an solid logic. This is the following:

We take lamb meat and we hydrolize it to end, filtrating and sterilising after.

We add now a small quantity of pork meat homogenized to the FPA and filtrate through sterilizing plaque. We obtain now a quantity of autosynthezide matter that, squeezed, comes to weigh what the lamb meat weighed minus the not hidrolized matter. But this matter is entirely protein and DNA pork protein. In other words, we have destroyed the sequences in aminoacids and the own of the DNA of the lamb by hidrolitic liberation and after the pattern of protean order and DNA protean introduced in a small quantity with the filtrate coming from the pork, it has produced a sequence order with arrange to the pork pattern.

There is nothing to be afraid of because a boy eats lamb meat and transforms it in boy meat. Only this time we have obtained it in vitro.

So the simplest life is the one we can discover in our FPA but outside this artificial medium of culture there is only active life when the two symbionts meet and associate. Vegetative when their are separated by a germinative nuclear membrane when at falling or disappearing the membrane they both get in touch We have already analysed in another work the precautions that the citoplasmatic item adopts during the space of time that the duplication the nuclear item lasts in order not to duplicate but once and with the view of saving the own integrity.

By the combined action of both symbionts the carbonated chain burns and the motor of life starts because it has energy for doing so. But as it is clearly understood , independently from the symbiotized structure , in order that the engine starts, it is necessary the burnable substrate for its consecution fight all the beings , some, directly, eating grass, others indirectly on top of a roof working, others making examinations to enter Public Administration.

Each being obtains its FPA that in this case is FPN, (Natural protoplasmatic fluid) with the mediums at its reach. Kindly if there are no difficulties, through violence if there are.

One half is obtained by everybody the same: breathing

The other half: the hydrolized some obtained it from the grass or herbs, others with mashed beans or pork chops in a restaurant.

So the vital authosynthesis defines at last a problem that is similar to building.

A designer architect: DNA

Mixture to join: Catalytic Enzymes

Bricks: Hidrolized substrate.

Bricklayers: Energy that comes from the biochemicals combustions.

This is the way a skyscraper is built and this is the way an elephant is built.

From this all results that the virus search in the live cells to establish a symbiosis with the citoplasmatic item of the cell and that this does not agree easily because by entering outside the normal via in the citoplasmatic structures, it hidrolizes them direct enzymatic action.

There is so, mutual aggression, and to this aggression the virus respond getting to minimum what they do not do in FPA because there is no aggression.

This out of via is perfectly explainable taking into account that it is not the same to eat a lamb steak than to have it stuck under our skin.

The clue of life is based definitively in that none of the two items can make a glucolytic process that generates energy.

When they associate, energy appears at the same time than life. Here they are confounded already: vital emanation and energetic fluid.

When the doctor cuts the umbilical string of the fetus, the baby stops being another organ of the mother and with the first anxious inspiration, with the first cry, a new collective life starts. The fetus become individual.

If it does not shout, it remains fetus, because it has not taken possession of the cellular collectivization.

To take possession we have to breathe. The anxious inspiration that produced the first cry associated the two items and the motor of the life started.

Hours later it will demand with new cries the first raw matter to give the first hidrolized to its collectivized cells in a representative and exigent act. It makes itself hear.

Many years later, after a last giant breath it will break the association and collective life will disappear.

The collective organization fails and the one that represents it disappears with it, because it is it, itself.

The cells still live, however, in complete anarchy and the nuclear items sustain during a time a vital latence at cost of the hidrolitic destruction of the citoplasmatic item.

But if the collective services are still usable and the symbiosis is broken by accident it can be re-established and the representation is the answer again.

After, all finishes as it began but in an inverse process . Synthesis and analysis. Constructive condensation and destructive hydrolisis.

The tree of the earth, the animal of the tree, the earth of the animal. The cycle is closed. So, the cycle of life is the cycle of Nitrogen and Carbon.

And, in this cycle, it has become true that matter is not created nor destroyed; it is only transformed.

“Pulvis eris, et pulvis reverteris.”