CHAPTER IV

THE REAGENTS

THE TYPE OF REAGENT

It is evident then from the foregoing that two types of attack may be made. One is to destroy whatever carbonyl respiration a pathogen may have, by condensing its carbonyl group with a highly activated amine as a destructive pharmacological measure. The other is to restore the carbonyl function to its highest physiological value in both the pathogen and in the tissue cell. We found that the first procedure not only injured the host cell, but brought about a resistant mutation in the pathogen. Further, as no carbonyl function was evident in viruses, or of note in cancer cells, such therapy must fail there. Observations with trimethyl melamine (Koch, J. Lab. Clin. Med. 1; 299, 1916) demonstrated a refractoriness to a second dose which we interpreted as the basis for the resistance mutation. We therefore prefer the physiological procedure of establishing high carbonyl function which proved its ability to secure separation of a virus parasite or a toxin after integration with the host cell, and also of making it harmless, and possibly biologically useful as well.

In the atrophic types of integration the results include the full freeing of the host cell of integrated toxin or virus. On the sensory side, this was observed in the cure of optic nerve and retina atrophy. On the motor side, by the cure of long standing paralysis and atrophy of Anterior Poliomyelitis, the restoration of function in the cure of the cardiotropic type of aftosa, and the nervous paralysis of rabies and of well established dog and cat distemper. In the neoplastic cases, the cure of cancer of the usual varieties affecting the vital organs with widespread infiltration and metastasis, the reconstruction of destroyed areas for function as speech, the ability to give birth to children, and the return of good stomach, liver, bladder and intestinal action. The recovery process follows a definite pat-

tern with digestion of the neoplasm into the same food elements taken from the blood to build it, so that nutrition is quickly improved. Just as after the absorption of a tumor, absorption of interstitial fibrosis in impeded organs may be revealed by an exhibition of symptoms and tissue changes transiently that occurred before the neoplasm or functional insufficiency developed, and in a sequence showing a reversal of the order in which such symptoms presented themselves during the pathogenesis. Hence we conclude that the very basis of the pathogenesis was corrected.

Highly active carbonyl groups, that can substitute for those the tissues have lost in the pathogenic set-up, can be produced synthetically by reinforcing the electron concentration at its carbon atom by migrations of electrons from double bonds conjugated with this group. Such double bonds can be those of other carbonyl groups arranged in open or closed chains. They can also be the double bonds of ethylenic groups or the triple bonds of acetylenic groups with which the carbonyl group is conjugated.

The quinones are the simplest examples of the effective ethylenic carbonyl conjugate, although we have used such simple molecules as maleic anhydride effectively. The quinones should not have substituents that displace hydrogen atoms unless these offer double bond systems as conjugates with the carbonyl group. The hydrogen atoms are necessary to restoration of the double bond after free radical addition. Moreover it is seen that the oxidation-reduction potential (ORP) of the quinone increases with the number of double bonds carrying free hydrogen atoms with which it is conjugated. Thus it is seen that anthraquinone with no quinone double bonds carrying hydrogen atoms and with two carbonyl groups, has an ORP, of 0.154 v. Alpha naphthaquinone with one double bond carrying two hydrogen atoms and two carbonyl groups has an ORP of 0.48 v. Betanaphtaquinone, with one double bond carrying two hydrogen atoms, and the double bond of a carbonyl group conjugated directly with the other carbonyl group has an ORP of 0.576 v. Parabenzoquinone presents two double bonds carrying four hy-

drogen atoms and two carbonyl groups, and has an ORP of 0.715 v. Ortho benzoquinone with two sets of double bonds carrying four hydrogen atoms and one of the carbonyl groups conjugated directly with the other has an ORP of 0.792 v. and diphenoquinone with five sets of double bonds with which the two carbonyl groups are conjugated and carrying eight hydrogen atoms, has an ORP of 0.954 v. While the dehydrogenating power increases with the concentration of mobile electrons at the carbonyl group, one will see to it that no substitutions are made in the molecules that withdraw such electrons. As the ethylenic linkages give up their electrons to the carbonyl group so as to make it more basophilic, they become more electrophilic, and hence with the increase of dehydrogenating power of the carbonyl group, the ethylenic linkage also increases in ability to add free radicals.

This ethylenic linkage shows a triple significance. One is important to the detoxicating power of the quinone when acting under anoxic or hypoxic conditions. Thus when the carbonyl group dehydrogenates a pathogen to form a free radical and oxygen is not at hand to peroxidize it, it can add to and injure the host double bonds or free radicals and cause disease. But in the presence of the quinone's highly active double bonds the additions will be made there instead, and the toxic molecule or virus is thus inactivated.

On the other hand the quinone double bonds can absorb and inactivate the free radicals formed in the toxin in the presence of oxygen when the former are in excessive amount, and thus the curative oxidation chain is blocked. Too large a dose of the quinone, especially of the diphenoquinone can block its own good work. Likewise when the recovery process is progressing well, a second dose can stop the favorable progress and even reverse it at times. Then one should not repeat the treatment unless necessary and never use a concentration higher than one to a million parts of solvent. The higher dilutions as the 12X generally work best. They carry millions of molecules per cubic centimeter, and this number may exceed that of the oxygen molecules available where the tissue colloids are gelled or where the circulation is impeded. The best situation for efficient action

is where each molecule of reagent is surrounded by a capsule of toxin molecules, so the oxidation chain progresses from one molecule to another until all are converted. Thus the quinones are good to start the recovery process and detoxicate when oxygen transport is impeded, as it usually is. And then when the inter and intracellular plasma gelling is cleared away a dose of the serial systems of carbonyl groups can be used. These can be prepared in open and closed chains of varying molecular weights.

However, the third aspect of the activity of the quinone's double bonds is not favorable. The greater the number of crossed conjugated systems in the molecule as in dipheno-quinone, the more difficult the situation that may arise. The clinical events qualify a therapeutic reagent better than any other test, and for a complete picture time is required to settle out the ultimate effects. Thus it has become evident after several decades of observation with correctly prepared reagents that where one type of group represents the molecule, as the carbonyl group in multiplied series, the clinical progress after its use is of one type. Recoveries carry through that last. They are cyclic with positive and negative phases, but the progress is forward. Gratifying improvement is appreciated between the negative phases. But when the carbonyl group is activated by electrons obtained from conjugated systems of ethylenic or acetylenic multiple bonds, a tendency to relapse is introduced, and this is greater the larger the number of such groups that are present in the molecule. This property is common to all crossed conjugated systems, and is observed mostly in patients with poor oxygen supply to the tissues. We have observed this situation to be somewhat annoying after using diphenoquinone. Our explanation is that the unsaturated systems present, after the quinone is reduced, activate the reducing power of the molecule, and hinder the recovery process. The sicker the patient, the greater is the anemia, and the more inefficient are the respiratory and vascular systems. Oxygen transport suffers and the exhaustion of oxidation catalysts tend to lessen the release of the hydrogen atom taken up by the quinone. The tendency is for a reduction type of chemistry to prevail or at least a slowing of the

oxidation of the toxin products liberated as the pathogen undergoes destruction. The symptoms of the different stages of its structure in its evolution are then far more annoying than if the serial system of carbonyl groups is used, for here the oxidation of such products may be so fast one scarcely identifies their transient presence. Therefore, also the intervals between the negative phases are never really comfortable.

Even such mild interferences with the oxidative advantage as come to tobacco smokers may show their adverse effects when a quinone is used, and here too the diphenoquinone may serve worst of all. Thus in 1941 a young diplomat who smoked too much and who was physically quite inert received a dose of the 6x benzoquinone solution with a trace of diphenoquinone for a chronic sinusitis with hay fever. He did very well for a few weeks, after which a negative phase set in, that tended to persist, so another dose was given. But it aggravated the symptoms still more. Even a 12x dilution of the diphenoquinone may show this effect. The serial system of carbonyl groups was then used with satisfactory results and the reports coming at times since then, have indicated no more trouble.

It is therefore well to be acquainted with each feature of the reagent structure, and the patient should be studied with these details in mind. This is important not simply at the start of the treatment, but one and a half and two years later when reactions pop up long after one thinks the cure is complete, and these reactions hang on continuously until the dose is repeated, preferably with one of the serial systems of carbonyl groups.

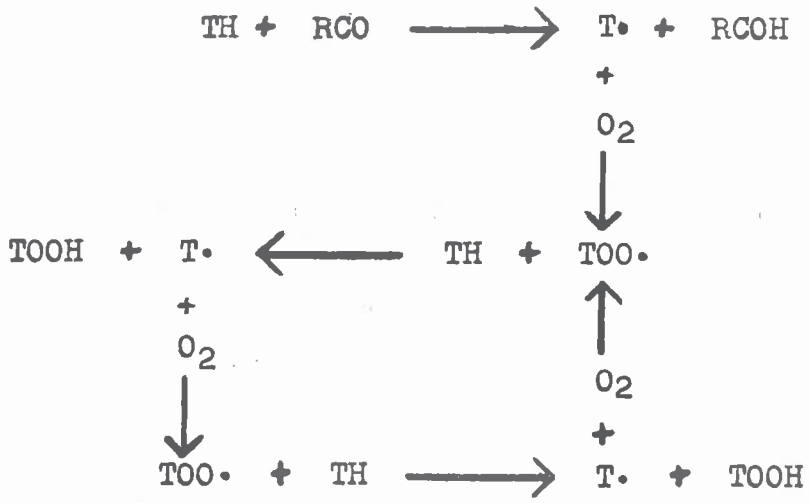
The serial systems of carbonyl groups appear to contribute their own electrons to the one engaged in the dehydrogenation, and as seen in Beta naphthaquinone and in orthobenzoquinone greater reactivity is had than where the carbonyl group is activated by ethylene conjugates only. In the separation of a virus from a host cell during the nearly always presence of hypoxia the free radical formed by the dehydrogenation could add to a double bond of the reagent and thus join it to the host cell, and it would not be freed of anything if a quinone were

the dehydrogenating reagent. But this would not be the case where serial systems of carbonyl groups are used. The virus or combined toxin would separate as a carbonyl compound and not carry a chain reaction, so the dose would be in the 6x range or the 9x range. Or if a quinone is used the dose would be more dilute. Of course as soon as the cell is freed so its carbonyl function is re-established it initiates its own oxidation chains.

Another advantage of the serial systems of carbonyl groups is that they can be prepared with free radical terminals, and when during anoxia they accomplish a dehydrogenation the free radical formed is not peroxidized and can add to the free radical of the carbonyl chain. This gives the toxin or virus plenty of highly reactive carbonyl groups from which to accomplish separation from the host vital structure, and to do so as a compound with a carbonyl terminal, which removes its toxicity and may even give it an autonomous energy producing existence with which it can serve the Great Biological Economy instead of being able to exist only as a parasite. Thus whether the homeopathicity is the matching of a free radical of the corrective reagent with that of the pathogen during hypoxia or anoxia, or whether the corrective free radical is formed via a carbonyl group of the reagent within the pathogen that can carry thereafter antitoxic and curative oxidation chains, in both the free radical mechanism and chain process is envolved. During the pathogenesis hypoxia or anoxia is the promoting factor, and during recovery oxygen is the ultimate requirement. To create the best field for action of the recovery mechanism, dietary and hygienic factors must be considered. They will be given due consideration later in this book. (Koch, Cancer Journal, October 1924; Carneire and Souza, Veterinaria, March 1950, p. 26.) This type of reaction may be outlined as follows:

Let T represent the toxin or integrated virus and H its most mobile hydrogen atom; TH would then be the structure to be attacked. Let RCO represent the remedy reagent with its activated carbonyl group which dehydrogenates the toxin or virus. The free radical T. is thus produced and this free radical adds molecular oxygen to form a peroxide free radical which

can dehydrogenate another molecule of toxin and thus keep the reaction chain going. It serves as the carrier or antitoxin state of structure of the pathogen. The toxin is thus converted into an antitoxin.

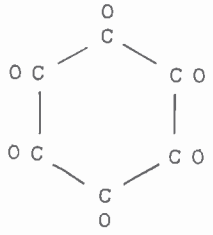


In summary one may say that full range dehydrogenating power is desired as the initial step of the therapy, so that toxins of all grades may be attacked for peroxidation. Then too, when oxygen supply is not sufficient to follow through, the molecular structures with highly electrophilic double bonds as the various quinones we have introduced to medicine may be used, and these are chosen to suit the features evident in each case. Finally the free radical terminals of long chains of carbonyl groups may be required, or even the free radicals exhibited mesomerically by resonance hybrids contributing to certain structures. These structures have activities of each type that is required by our hypothesis, and the case observations that follow demonstrate this.

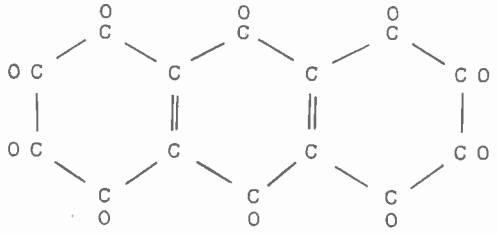
PLATE III

Structural Formulae of Reagents

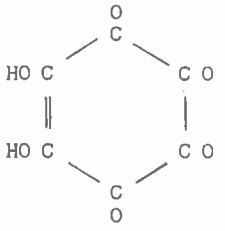
Structural Formulae of Reagents



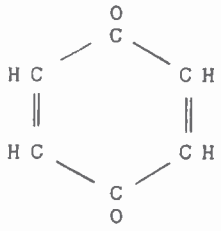
Triquinoyl



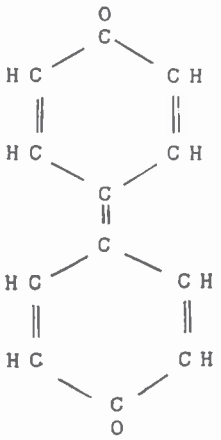
Compound (C)



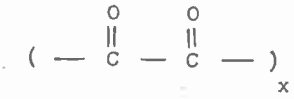
Rhodozonic Acid



Benzoquinone



Diphenoquinone



Serial System of
Carbonyl groups with
free radical terminals.

THE DILUTIONS OF THE SOLUTIONS USED

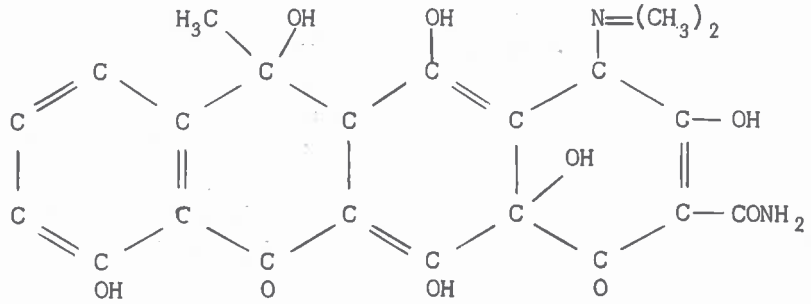
This subject has been a stumbling block to many physicians who do not understand the principle of high dilutions. Some remedies must be used as concentratedly as possible, while others serve the body chemistry in very high dilutions, as catalysts. A dilution of one part to a trillion of solvent, is very high, yet each cubic centimeter carries many millions of molecules, and in many physiological reactions this is the dose that is found to work best. As we pointed out formerly, Kuhn and others showed that the dilutions of crocin worked vigorously in that range, and that one molecule per algae cell was sufficient to activate its sex functions. Other vital agents require high dilutions. Therefore when a cubic centimeter carries millions of molecules there are more than the one required to accomplish a dehydrogenation and start an oxidation chain which will grow with geometric speed.

One should therefore turn his attention to the other phase of the problem, namely, **how concentrated dare the solution be for the best service?** This will depend upon the molecular structure, and in general, the more the carbonyl groups as compared with the number of ethylene linkages in the molecule, the more concentrated the solution may be. For the serial systems of carbonyl groups, the reagent may be diluted to one to a million. But where high double bond content predominates as in diphenoquinone, the dilution should be one to a trillion, lest the double bonds be too close at hand and absorb the free radical produced by the lonely carbonyl groups. It is easy to see that higher concentration here would give no results at all and the excess of double bonds could even inactivate the free radicals of normal oxidation processes and make the condition worse than it was. This principle also governs the repetition of the dose. A second dose may defeat the whole program of recovery. Other factors that determine the dilution and amount are, the extent of the disease, the amount of oxygen present, the circulatory advantage, the development of the musculature, the time the disease is established. What other therapies have been previously employed, the amount of narcotic consumed, the adequacy of kidney and gastro-intestinal function, and the ability of the red blood

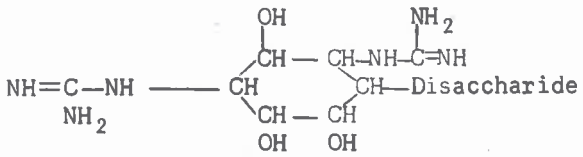
cells to crenate in a one percent salt solution must also be considered.

PLATE IV

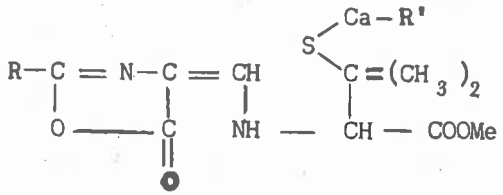
Structures Of Most Efficient Antibiotics And Ketosteroidss



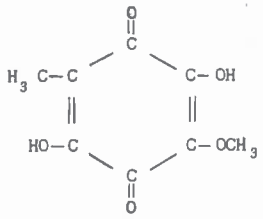
Terramycin



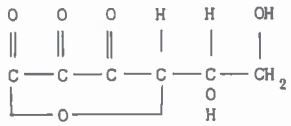
Streptomycin with its abundant activated amine groups



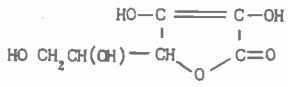
Penicillin (active salt)



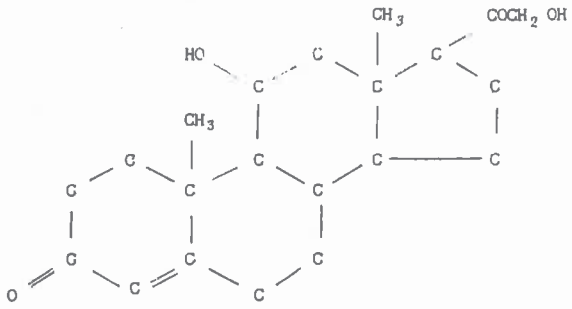
Spinulosin



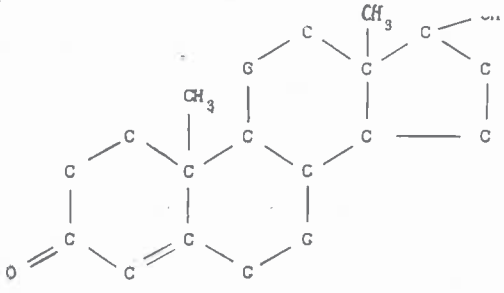
Dehydroascorbic Acid



Ascorbic Acid



Corticosterone



Testosterone

COMPARISON WITH ANTIBIOTICS

Inspection of the formula of the best known antibiotics reveals that there are two sets of groups which are active. These are the activated carbonyl group and the activated amine group, both of which we studied a quarter of a century before antibiotics were discovered. There are two dominant types as well as combination of both as shown in the utilization of these groups. Spinulosin, Phoenicin, Citrinin and Clavicin which present the carbonyl group activated by conjugation with an ethylenic linkage are of one type. Streptomycin presenting the activated amine group only, in two guanidin groups as substituents of cyclohexane represents the other extreme. Then in Penicillin, and Terramycin we have the both combined. However the amine groups are protected from activity by methyl substitution and by carbonyl proximity in Terramycin, while in Penicillin a bond cleavage is required for its liberation. They are then activated by conjugations with ethylenic double bonds. Streptomycin's amine groups are activated by conjugation with the double bonds of imide groups. Penicillin and Terramycin both present carbonyl groups. These are well activated by double bond conjugations in Terramycin, and become activated in Penicillin on forming the salt. Thus as the amine group acts on a molecule for molecule condensation basis, its value depends on the presence of a sufficient number of molecules to inactivate all germ respiration. It must be used in fairly high concentration. The carbonyl group activity being catalytic in line with our hypothesis should act best in high dilution, and this is proven to be the case since high dilutions are constructive and stimulate tissue development. Thus one can suppress the amine action by dilution while at the same time increasing the catalytic oxidative growth promoting action. These facts in addition to the phenomena of the ketosteroids give splendid support to our old hypothesis.

The recent hydrazide drugs belong to this discussion, being related to streptomycin in their activation of amine activity. While they are a great improvement on the confusions of the past in tuberculosis therapy, they still carry the weakness of the toxic amine group as their active agent. The conse-

quences of its use is not yet fully seen, but when compared with the carbonyl group to secure real harmless recoveries, one sees that constructive therapy is far superior. The few case histories given later which were used in the Federal Court establishes this point very nicely. No germ can mutate against being cured of its defects either, while they do mutate against further injury as by the hydrazide and amine therapies. When the clinical material is studied as given later, it will be seen that after the carbonyl treatment the germ becomes harmless, be it a most virulent tubercule bacillus, a leprosy bacillus, a pus germ, or some deadly virus. Since germs that caused the gangrenous lesions may increase in number during the healing, and the detoxication of the patient, when there is much tissue debris to be removed, and as they rapidly decrease in number where the lesion is mostly inflammatory with little tissue destruction, we have concluded that after the treatment they are able to aid in the cleaning up process and the detoxication. This is seen in dairy cattle with gangrenous mastitis, and during the recovery from tuberculosis with huge cavitations. One sees tubercule bacilli undergoing digestion and fragmentation in the large mononuclears and mast cells which themselves appear healthy and uninjured. When the clearing out process is finished the germs disappear even though the radiographs show large cavities with smooth walls that are undergoing absorption. The radiographs that follow show this process with the replacement of the lesion by normal lung parenchyma.

To observe the amino group toxicities stepped up to the highest pitch of action by different electron contributing atomic arrangements, and specific more or less for two different tissue cell mechanisms, mitotic and contractile, one may compare the structures of acetylaminofluorene, and trimethyl melamine. Of all the carcinogens, acetylaminofluorene offers the most active of carbonyl inhibitors and of all the heart poisons trimethyl melamine is the most active in my experience. The amine groups in both are protected by substituents that can be rapidly removed leaving the nascent amine group alive to make its condensations with carbonyl, the most active of which in the tissue cell are those just mentioned. Tissue specificity probably de-

pends upon the ability to liberate the amine group of its substituents right in the cell where it can then act. Of course the first action of the carcinogen should be to paralyse normal mitosis in some such way as we have diagrammed, and when the virus or some incompletely combusted germ or cell metabolite steps in the neoplastic process is put into action.

Amines produced in the neoplastic lesion by molds show two antibiotic effects favoring neoplasia. One is the inactivation of the protective functional carbonyl group, and the other, the gelation of the inter and intracellular colloids that interferes with oxygen transport. This double effect is observed in the lesser use of oxygen by the neoplastic lesion and the greater amount of oxygen in the venous blood issuing from it than is found in the venous blood coming from normal tissue.

The importance of carbonyl of high activation in the use of oxygen in living tissues is also seen in the boost to the use of oxygen by surviving tissue slices when catalytic dilutions of the reagents described in this text are supplied. Thus the oxygen use has been boosted in normal and neoplastic tissues, in yeasts and molds, and some bacteria, as much as 40% at times. This effect on tissues may not take place to such a great extent in the unhindered circulatory set-up, where amines can be washed out of the way so as not to hinder the functional carbonyl activity in initiating oxidation chains. While such experimental data are indicative, they are not quantitatively transposable from the events in an improvised flask to those in the wonderously balanced organism. Such considerations should be applied to the Krebs cycle interpretations also.

The great increase in cancer, even in children, since the sulpha and mold antibiotic amines have been given such wide therapeutic use is significant since (amine producing) molds are now recognized as present in cancer lesions, and the degenerative effects of antibiotics on tissues is beginning to be known.

DIAMINE OXIDASE

In our search for reagents provided by Nature that resemble our synthetic products we find among plants a number of highly active carbonyl compounds, especially in Brazil.

One of these is a plant that shows reflex motion. If one end of a stem is touched the whole section closes up. It is called the "Dormideira" plant. An infusion is used by the natives to cure gonorrhea and other infections of the uterus. The well known Camomile plant offers an active carbonyl group too. So does the dandelion, the yellow colored material of butterfly wings and many other expressions of Nature.

The most pertinent example however is the Diamine Oxidase, which is an oxidation catalyst found in the intestinal mucosa, the placenta, the lactating mammary gland, and in high content in the blood of pregnant women so long as the fetus is developing. When the content drops, abortion threatens. Our knowledge of this substance was developed principally by Zeller, and confirmed by Best, McHenry, Werle, and others. Zeller showed that this enzyme serves as a dehydrogenator by virtue of its carbonyl groups, producing imides that split off as ammonia similarly to the oxidative deamination of amino acids. The intermediate hydrogen acceptor is Flavine-adenine dinucleotide with oxygen the ultimate hydrogen acceptor yielding hydrogen peroxide. (See, "The Enzymes", edited by Sumner and Myrbaek, Vol. II, Part I, page 554, 1951.) No doubt placenta extracts owe their protective action in large part to this enzyme. Diamine Oxidase destroys histamine and has been named histaminase by Best. Its importance in the combat against allergies as a Natural Immunity reagent is well recognized. We believe the virtues of Queen Bee Jelly reside in similar substances of high unsaturation.

Zeller's demonstration that diamine Oxidase works through its carbonyl group as a dehydrogenator (Advances in Enzymology, vol. 2, page 93, 1942) to detoxicate against toxic diamines, brings forth a proof from Nature of the validity of the process we accomplished synthetically and put into use over twenty years earlier. His work was reported at about the time the Federal Trade Commission brought injunction proceedings against us. It is their contention that our advertisement was "false and misleading'' and that it constituted "false advertisements." Among the statements that they said were "false representations of material facts'' is: "THE BASIS OF IMMUNITY is,

after all, the vital principle, the OXIDATION MECHANISM. When its catalysis ceases, death is the result. When its activity wanes, the toxins that support pathogenic germ activity, that produce allergy, or that cause cancer, are not destroyed in the body, and can execute their effects. All of these toxins depend upon their free valencies between carbon atoms, between carbon and oxygen, and between carbon and nitrogen for their pathogenic photochemic action." The Commission in effect denies that the oxidation mechanism and oxidation catalysis have a real important place in the maintenance of health and in the protection against disease. In the same breath they "ordain" that one cannot die of asphyxia.

Thus in Nature the carbonyl group has played a detoxication role against amines, and as we pointed out decades ago the amine group serves to block the carbonyl activity toward the oxidative destruction of amino acids in the preservation of the protein structure. Thus the amino acid is made up with the carbonyl group flanked by an amine group, both of which combine to constitute the unions of the protein structure. Our thesis deals with other highly important antagonistic and complimentary activities of these two groups. But it was not until thirty-five years ago that we could use synthetic carbonyl structures, and build them up as we wished, to meet any pathogen of importance be they amine compounds or polarity reagents depending upon free radical phenomena. These matters will be demonstrated as we go along.

THE ROLE OF FOCAL INFECTION

The Buried Tonsil

Many persons going beyond forty years of age develop a variety of symptoms and tissue changes that are puzzles to all the specialists they consult. These affairs range from debilitating coronary deficiencies with occasional occlusion crises, to painful varicosities, with or without invaliding necrotic ulcers. Indeed, cancer of the breast may be a sequel to the basic defect.

In such cases the right tonsil generally is found enlarged and rolled out of its hammock with the crypts open and drain-

ing. The left tonsil, most often, or it may be the right or both, are deeply fibrosed and calcified perhaps too and buried in their hammocks and firmly fixed. The fibrosis may be quite extensive, or only enough to hold the tonsil deep in its recess. Some cervical gland hardening may also be observed, but generally the complaint is that the "thyroid" bothers them, and they never are bothered with sore throat on the affected side. Pains however may be severe enough to extend to the back of the neck and call for complaint. The infection is well walled in and calcified generally, and surgical removal would run serious hemorrhage dangers, and would have to be too radical and deforming to be complete. The circulation to the inside that holds the infection is of course much reduced and the area is quite hypoxic so that the toxins evolved by the germ have a good chance to polymerize. Slowly the toxins diffuse into the lymph and blood circulations and may follow the lymphatics against the stream as it were into the glandular tissue of the breast. The toxins circulate quite generally too and as they polymerize to increasing molecular weights they produce a variety of symptoms, that affect each and every tissue of the body. The variety of complaints is too great to be dealt with here. The present day remedy used so often is cortisone for the arthritis, for the skin lesions, for the headaches and for anything else, and gratifying relief is had in many instances. However the pathology keeps on progressing until invalidism and inability to buy drugs calls for a change. The effects of the Cortisone may have prohibited its further use too.

When we see such a case, the examination of the throat tells the program of illness that has been suffered and after a few questions the rest can be given quite accurately without further inquiry. The treatment is satisfactorily one of the quinones, the diphenoquinone serving best. The reactions are rather severe after its use in the 6x dilution, so the 12x may be used best with frail people whose heredity has predisposed them. However where the reactions are too troublesome the serial system of carbonyl groups can be used with even better results and less reaction. The value of the reactions is to indicate the position of the patient in the recovery course and to show that the cure is

not complete before it is safe to leave the regime for the old habits that contributed to the illness.

Generally in three or four weeks the buried tonsil is loose in its hammock and falls forward under favorable conditions. The neck fibrosis is gone and the "thyroid" causes no more trouble. The heart action or high blood pressure may be much improved and the gall bladder is forgotten. In the course of a few months normalcy is established, but there may be some heavy febrile reactions at the third, sixth, ninth, or twelfth weeks or even later. We have seen large cancers of the ovary biopsied to show very malignant adenocarcinoma clear completely while the tonsil was normalizing. The last reaction to come is generally a severe sore throat on the side of the buried tonsil, and where neoplastic disease is established, this reaction comes after the growth is absorbed totally or for the most part. The local inflammation resembles one of years earlier that most often can be remembered. Many people lose much of the pleasure of life because of such buried infection. It is "silent," but not inactive. Its cure should prevent such disasters as cancer in many instances, and arthritis, varicose ulcers, etc., in others.

CHAPTER V

THE RECOVERY MECHANISM

Cyclic reactions often characterized by the symptoms of the pathogenesis showing up in the reverse sequence to their coming, and accompanied by a local congestion at the lesion, as well as constitutional symptoms of grippiness as occurs in so many virus infections are to be expected periodically while recovery is in progress. The cycles run in a definite periodicity in which a three hour unit, or more often, a twelve or twenty-four, thirty-six, seventy-two or eighty-four hour interval is usually observed. Thus a reaction of chills and fever and achiness can show up twenty-four, seventy-two or eighty-four hours after the treatment. Or it may come the third week, the sixth week, the ninth week or the twelfth, twenty-fourth, thirty-sixth, sixtieth, seventy-second, eighty-fourth, ninety-sixth, hundred and eighth week, or later multiple of twelve weeks.

The local features in the lesion are congestion, swelling, hyperaesthesia, hyperreflexia, more or less pain, local heat, and maybe some bleeding. But this passes off in three hours or a multiple thereof, and improvement is then noted. When biopsies are taken of the lesion undergoing recovery in this way, it will be found to first undergo a coagulation necrosis and then a calcification much like accompanies or mediates the digestion of a blood clot, or of milk. Vascular ingrowth is observed, first angioblastic and fibroblastic tissue and mast cells or other white blood cells to help carry off the debris. (Koch, New York, Medical Record, October 30, 1920.) Angioblastic tissue finally replaces the growth, and then functionating parenchyma grows in to reform the organ on physiological lines. The cure is therefore complete, as it could not start without preliminary elimination of the pathogen, and its functional status is returned. The sequence of events during reconstruction is exceedingly interesting and will be discussed in detail in the completed text. The case histories that follow demonstrate the return of function. What needs to be illustrated here is the adaption of the mole-