

CONCLUDING STATEMENT

No simple statement can be comprehensive enough to cover the chemistry of immunity, but a few matters set forth here should be recalled. Chief among them is the importance of the carbonyl group to the oxidation process, be it for function or the burning of poisons. In the amino acids the carbonyl group is quite inert since it is flanked by an amino group. In this way the protein structure is protected, but when a toxic state is brought about through bacterial or some other action, immunity does not emerge until a sufficient degree of protein lysis and desamidation takes place to liberate a quantity of carbon chains possessing carbonyl groups. The efficiency of the carbonyl yield thus accomplished will depend upon the molecules that carry this group. When carbonyl is flanked by hydroxyl, by another carbonyl, or by an ethylene or acetylene group, I have found its catalytic powers to be greatest, and that is why we have proposed glyoxylide as the most efficient immunity body possible. Malonide is definitely effective against malignancy and the most severe infections, and propargylic aldehyde, containing both a carbonyl and an acetylene group has proven curative in very severe infection. Hydroxyl or another carbonyl (dihydroxyl) in close relation, are also accelerators of carbonyl activity. Thus in cancer we have found glycolaldehyde and glyoxal able to restore a sufficiently vigorous oxidation mechanism to produce true recovery; and any agent that can correct the deficiency in cancer can do so too in all the other allergies and infections. Thus immunity depends upon simple bodies containing carbonyl groups that are properly associated with hydroxyl, carbonyl, or unsaturated carbon unions. No single structure carrying carbonyl is curative in every case. In the instances described below two simple structures proved very effective, but they failed in other instances. The whole group previously outlined are required to cover the usual run of cases of all diseases. Disease producing bodies when derived from the amino acids must lose their carbonyl groups as in histidine, or in methyl guanidine, derived

from creatine. The negative catalytic effects of bacterial toxins have occasion to arise here and in the further unsaturated imino groups. To demonstrate the lasting restoration of immunity secured by carbonyl groups alone or with hydroxyl where the patient was in the most extreme state of depletion, two case histories are offered solely for emphasis. Highly diluted formaldehyde solutions have yielded definite benefits in true malignancy also.

Mr. H.—Age 51, April 25, 1925 when examined and treated. Past history of gastric ulcer with severe hemorrhages for fifteen years and recently a severe myocarditis. Present illness started in 1924 as vomiting, pain in stomach area and rapid loss of weight. In last four months lost from 178 to 155 pounds. My examination revealed a bulging mass occupying the epigastrium and extending 2 inches below umbilicus, metastasis to left supraclavicular space. One also in anterior shelf of sigmoid, mediastinal dullness increased. Radiographs demonstrated lesion extending from prepyloris to cardia and cap absent. This was constant in all films. Patient was cachectic, cyanotic and dyspneic; much hemolysis. One dose of glycolaldehyde solution highly diluted was given intravenously. Recovery was steady. All pathology cleared up within a year. He works hard and remains well.

Mrs. E. R.—Age 57 at time of treatment, November 6, 1923. She had an advanced inoperable cancer of the uterus and was refused surgery at the Mayo Clinic in June, 1923, and sent back home as incurable in November, 1923. My examination made November 6, 1923, revealed a mass of cancer that bulged like a six-month pregnancy, extending to one and one-half inches above the umbilicus. The mass expanded the vaginal vault and obliterated the cervix, was nodular, hemorrhagic and draining. It extended throughout the adnexia and involved the bladder wall, causing much compression. It had grown rapidly since June. General marked arterio-sclerosis, and some skin pigmentation disturbance. One dose of glyoxal solution was given; improvement started on the fourth day and she steadily gained $\frac{3}{4}$ -pound per week from 115 to 168. In six months the whole cancer mass had completely absorbed. She remains well to date.