# APPLIED PROTOMORPHOLOGY

## The Physiological Control of Growth and Repair

It may be assumed that the specific growth factors (the cellular blueprints known as protomorphogen (PMG) that are constantly being secreted by each cell into its surrounding fluids) are prevented from traveling very far by the influence of specific antibodies, known as Natural Tissue Antibodies (NTA). They must be destroyed, as if allowed to build up in any concentration, they would promote cell growth and mitosis. Only if any specific organ becomes subject to overwork and consequent inflammation in some degree does this occur. (A kidney doubles in size in six months after its partner has been removed.) (Muscles grow if sufficient demand is made on their ability.)

Where disease has damaged an organ, such as tuberculosis in the case of the lung, or where the heart had hypertrophied by overwork, the ingestion of heart or lung PMG, as the case may be, may at first create adverse reactions of a toxic nature (malaise, tiredness), apparently by reason of the immediate proteolytic destruction of the ingested PMG by antibodies in the blood stream, that are present in higher amounts than normally, by reason of the long-standing inflammation of the specific organ.

But cardiographic recordings will show that within a few minutes after ingestion of the cardiac PMG the heart action changes for the better. It is hard to explain this reaction other than by assuming that the excess heart tissue antibody in the circulating blood has been reduced by combination with the ingested heart PMG. This is probably done without danger of stimulating the formation of more heart tissue antibody, since alimentary ingestion normally does not permit proteins to act as antigens. Parenteral introduction of such materials is another matter. (Note the adverse results that were reported following the injection of eye lens extracts to treat cataract.)

Other factors that assist in controlling NTA are allantoin, betaine, (probably be a depolymerizing effect), and the hormones of the gonads, thyroid, thymus, and adrenal. Thymus acts by promoting colloidal dispersion that physiologically opposes cortisone, which flocculates antigens into particulate dimensions that permit their ingestion by phagocytes (and then antibody formation). The thymus during the development age, prevents this and keeps PMG available for growth stimulation and ultimate enzyme digestion and renal elimination.

Thyroid hormone splits PMG off the chromatin reserves of the cell, or from absorbed stores in connective tissue. That is why thyroxin accelerated tadpole metamorphosis. It is also the reason why thyroxin increases the metabolic rate. The released PMG stimulates cell activities.