much simplified. Any longitudinal splitting of the chromosome will partition two qualitatively equivalent parts which may or may not be quantitatively equivalent.

The Autonomy of Cellular Organelles

The capacity of a cell for continuous growth is the result of a specific structural association of the different organelles which make up the cell[1]. Cytological examination of the yeast cell has shown that many of the organelles (the cell wall, the plasma membrane, the mitochondria[2], the nuclear membrane, the centrosome and the centrochromatin) have the same integrity and continuity in time that characterizes the chromosomes; they cannot arise *de novo*. Most of these cellular components divide in a manner which does not provide for precise transmission of specific portions to each daughter cell. The absence of a method for division into two precisely equivalent fractions suggests that they may be relatively homogeneous. There is no reason to assume that one of these cellular components is any more important than any other, or that any one directs the activities of any of the others, except that certain genes are the sole source of their respective enzymes by the enzyme-template mechanism. The cell can function only if all its component parts are present in proper structural correlation and in adequate amounts. There is no reason to assume that any of the components is unique in the manner in which it reproduces itself; the present hypothesis proposes that they all reproduce by the simple accretion of molecules like those which they contain, and it is their association with each other in an adequate milieu which provides the molecules necessary for their increase in size. Control of the growth process could obtain if each of the permanent organelles were rate-limiting; when any one is present in less than the minimal amount, the others cannot obtain the supply of molecules necessary for maintenance and increase until the deficient organelle increases sufficiently to make its required contribution adequate.

The chromosomes differ from the other permanent organelles in their high degree of linear heterogeneity. Mutations usually constitute defects or deletions in the heterogeneous chromosomes. The deficiency in the organism caused by the absence of the contribution ordinarily made by the intact region of the chromosome becomes apparent because the rest of the chromosome produces sufficient material to enable the defective cell to continue to grow, although the result is slightly different from normal. The survival of the defective mutant has led to the view that genes are structures which differ from other cellular components by the specific ability to *reproduce variations of themselves*, but this is fundamentally incorrect. It is correct to say that when a defect occurs in a small segment of a chromosome, the organism can carry on, but in a changed condition, because of the absence of the contribution previously made by that region now called the mutant gene.

Zusammenfassung

Die mit Tetradenanalyse durchgeführten Untersuchungen fordern eine grundsätzliche Modifikation der Mendel-Theorie. Die Experimente führen zur Annahme, dass das Gen eine grosse Zahl übertragbarer Bestandteile trägt, die ringförmig um das Chromosom gelagert sind. Diese Teilchen können bei der Reduktion ungleichmässig auf die Allele verteilt werden. Gewisse Gene werden als «Enzym-Matrizen-Gene» (enzyme-template) bezeichnet, und ihre übertragbaren Bestandteile werden als Spiegelbilder des Substrats aufgefasst. Die Untersuchung einer multiplen Allelserie eines Enzyme-template-Gens ergab, dass das Gen nicht selbst das Enzym darstellt, sondern nur als eine Rezeptorstelle wirkt, die durch die Einwirkung des Substrats angeregt wird. Dies führt zur Bildung des Enzyms.

[1] CARL C. LINDEGREN, Symp. Soc. Exp. Bio. No. 6, 277 (1952).
[2] BALAJI MUNDKUR (in press).

SOCIETATES

I.C.S.U. Abstracting Board

The International Council of Scientific Unions has set up an Abstracting Board (Bureau des Résumés analytiques du C.I.U.S.) with the purpose of facilitating the work of existing well established journals publishing abstracts of original papers in the field of the natural sciences.

In principle, any such journal can seek membership to the Board, which is constituted, under a neutral Chairman, of (a) respresentatives of the interested International Unions, (b) representatives of the Member Journals: together with the Secretary General I.C.S.U. as an *ex officio* member.

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Dr. L.H. LAMPITT sits as an observer for the International Union of Pure and Applied Chemistry.

The offices of the Secretariat are at the Institut d'Optique, 3, Boulevard Pasteur, Paris XV°, where work has already begun with the aid of a special subvention from UNESCO. The Secretary of the Board will gladly give any information desired about the facilities which can be extended to Member journals.

CONGRESSUS

XIII. Internationaler Kongress der Reinen und Angewandten Chemie in Stockholm

29. Juli bis 4. August 1953

Im Zusammenhang mit diesem Kongress wird ein Symposium der Holzchemie in Stockholm angeordnet, und unmittelbar nach dem Kongress findet ein Symposium der makromolekularen Chemie in Uppsala statt. Die Anmeldungen der Teilnehmer müssen spätestens am 1. März 1953 beim Kongressbüro eingegangen sein. Zirkulare mit dem Kongressprogramm sowie Formulare für die definitive Meldung und sonstige Auskünfte sind vom Generalsekretär erhältlich unter der Adresse: Dr. BENGT SANDBERG, XIII International Congress of Pure and Applied Chemistry, Stockholm 70, Schweden.