junctional transmission, that is, the initiating action of acetylcholine in depolarizing the 'membrane' may lie in the peripheral charge lodged in its cationic head. This is not altogether unreasonable when one considers that the excitable 'membrane' is thought to be composed of a lipoprotein matrix which would be susceptible to the action of charged particles.

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F. P. DWYER
ELEANORA C. GYARFAS
Dept. of Chemistry,
University of Sydney.
N.S.W.

R. D. WRIGHT
A. SHULMAN
Dept. of Physiology,
University of Melbourne,
Victoria.

Oct. 26.

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Absolute Amount of Ribonucleic Acid in Virus and Cytoplasmic Particles

As Frisch-Niggemeyer[1] has pointed out, many viruses of plant and animal origin seem to contain the same quantity of ribonucleic acid, about 2×10^6 gm. per mole of virus. Recently, cytoplasmic nucleoprotein particles have been isolated from yeast[2], pea root (Tsao, P., *et al.*, personal communication) and rat liver[3]. From the particle weight and percentage of nucleic acid found for the particles from either yeast or pea root, a value of $1{\cdot}7 \times 10^6$ gm. for the weight of ribonucleic acid existing in one mole of nucleoprotein may be calculated. A similar amount of ribonucleic acid seems to be contained also in the cytoplasmic particles from rat liver. Thus, in the normal cytoplasmic nucleoprotein particles of both plant and animal origin, the mass of ribonucleic acid appears to be the same and coincides with the amount found in many plant and animal viruses. In view of the diverse origin and very large variations in chemical and morphological complexity and in the absolute amounts of all other chemical constituents, the uniformity of nucleic acid content of these nucleoproteins is felt to be remarkable.

This regularity suggests that one fundamental unit of ribonucleic acid is probably contained in one particle of many viruses and cytoplasmic nucleoproteins in plants and animals. For simplicity, one would like to consider the unit as one ribonucleic acid particle, with a particle weight of about $1{\cdot}7 \times 10^6$. This consideration is tempting in view of the finding[4] that despite the varied range of preparative conditions, the ribonucleic acid isolated from tobacco mosaic virus has a consistent particle weight of $1{\cdot}7 \times 10^6$. The fact that there is evidence[5] that some viruses contain nucleoprotein sub-units does not necessarily contradict this hypothesis. Perhaps in a virus particle these sub-units form a chain of beads, with a thread of the ribonucleic acid particle running along the core.

It has been inferred from crystallographic considerations that nucleic acid in a small virus particle of plant, animal or bacterial origin may consist of identical sub-units[6]. The regularity described in the present communication also suggests that ribonucleic acids of many plant and animal viruses are probably made from nucleotides by one and the same mechanism, and that furthermore this mechanism is probably the same as that which makes cytoplasmic ribonucleic acid of normal plant and animal cells.

PING-YAO CHENG

Rockefeller Foundation Virus Laboratories,
New York.

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Water and Mucopolysaccharide as Structural Components of Connective Tissue

WHILE tensile and compressive forces must occur throughout an animal body, specific tissues the major function of which is to withstand compression, such as bone, are usually localized. There must be other structures which can resist compression, and water, as a universally occurring and incompressible fluid, could contribute to this property of the structures, provided that free flow of liquid under the applied pressure was prevented. In cell masses exposed to compression, both the colloidal nature of cytoplasm and the barriers provided by cell membranes are likely to hinder such free flow.

Partial immobilization of water in connective tissue may occur according to the following scheme in which three types of frictional interaction are postulated: (1) between interstitial water and high polymeric substances, such as mucopolysaccharides, dissolved in it; (2) between this solution and particles, such as fibres and cells, dispersed in it; (3) between the resultant suspension and the enclosures of the tissue space, and also with any strands of fibres pervading the space. The resulting structure would be visco-elastic, that is, while it could withstand compression it would also slowly flow under prolonged application of a pressure gradient. While no proof is available for this model, which links the molecular and the microscopic structures by a chain of frictional interactions, it is supported by some studies on Wharton's jelly[1], a detailed account of which will be submitted for publication elsewhere.

Some solutions of hyaluronic acid will not pass through pores of the order of 1μ diameter[2], and physical measurements indicate a considerable hydrodynamic hydration of these polymers[3]. Such solutions have a high viscosity[3], and that this will be further increased by particles suspended in solution follows from both observation and theory. The effective