

# SCIENCE

VOL. 74

FRIDAY, DECEMBER 11, 1931

No. 1928

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## NEW CONTRIBUTIONS IN STEROL METABOLISM

By Professor RUDOLF SCHOENHEIMER

UNIVERSITY OF FREIBURG

It is only a relatively short time since we assumed that plants only could synthesize complex compounds whereas animals were forced to obtain these complex compounds indirectly from plants and that in modifying these complex compounds for their specific needs only slight chemical changes are necessary.

One of the most complicated substances in the animal body is cholesterol. It is a hydroaromatic secondary alcohol with 27 carbon atoms containing two combined six carbon-rings, one five carbon-ring, a side chain and one double bond.

It is, therefore, not surprising that this knowledge of the constitution of cholesterol led to the assumption that the animal body was forced to obtain this or a similar substance from plants because we could not conceive of synthetic activities of that order in animal tissues. However, cholesterol-balance studies by

<sup>1</sup> Alpha Omega Alpha lecture delivered in Cleveland, February 27, 1931. These studies were in part aided by a grant from the Douglas Smith Foundation for Medical Research, University of Chicago.

various authors (Thannhauser, Bürger, Beumer, Randles and Knudson) indicated that at least under certain special conditions, animals also possess the power to form cholesterol because they sometimes found a negative balance in their metabolism studies, that is, they sometimes found more sterol excreted than consumed.

These observations left unanswered the question of whether all the cholesterol present in the animal body was due to a synthesis in the animal body or whether the major part did not after all come from vegetable food. The conversion of plant sterols into cholesterol in the animal body requires that the plant sterols which differ chemically from cholesterol must be absorbable, a question which up to the present has not been investigated in detail.

The only phase of sterol absorption in the animal body known up to the present time is that of the absorption of animal cholesterol. Considerable evidence in favor of this view had been accumulated.

# Science

74 (1928)

*Science* 74 (1928), 10-608.

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