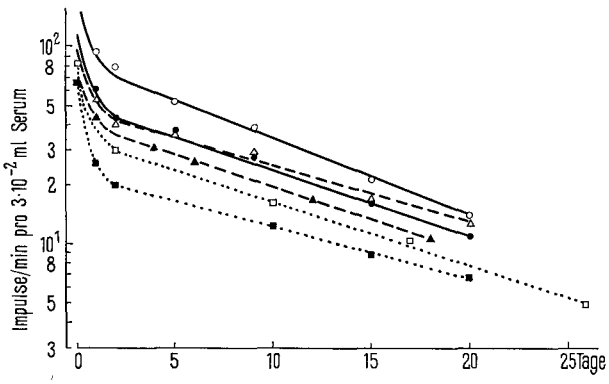
Der Eiweiss-*N* wurde mit Mikrokjeldahl erfasst. Das Makroglobulingemisch (erste Fraktion aus Sephadex G-200) wurde nach McFarlane[5] im Eidgenössischen Institut für Reaktorforschung in Würenlingen (Schweiz) mit J^{131} markiert und bei 6 gesunden Versuchspersonen injiziert (40–60 μC/Proband).

Darauf wurde in mehrstündigen bis mehrtägigen Abständen Blut aus der Kubitalvene entnommen, das Serum nach Entfernen des Blutkuchens abzentrifugiert und aus einer Serumverdünnung 1:50 (mit 0,15 NaCl-Lösung) im Verhältnis 4:5 mit hochspezifischem Anti-α_2-Makroglobulin aus Kaninchen (Behringwerke, Marburg) im Bereich deutlichen Antikörperüberschusses präzipitiert. Das Präzipitat wurde 3mal mit gekühlter 0,15*M* NaCl-Lösung gewaschen, in 1:10*n* NaOH gelöst und quantitativ auf oberflächengeschützte Aluminiumschälchen ($1^1/_4$ Zoll) gebracht. Die Radioaktivität wurde nach Trocknen bis zur Gewichtskonstanz (bei ca. 50 °C) in einem Low-Level B-Counter Type RA 12 (Firma Intertechnique, Plaisir, Frankreich) gemessen. Zum Ende des Versuchs wurde das Plasmavolumen mit Hilfe Cr^{51}-markierter Erythrocyten bestimmt[6,7].



Verhalten der α_2-Makroglobulin-I^{131}-Aktivität im Serum von 6 gesunden Versuchspersonen.

Ergebnisse. Die in der nachstehenden Figur dargestellten Aktivitätsverläufe ergeben Umsatzkurven von ähnlichem Verlauf, wie sie zum Beispiel für Albumin, γ-Globulin und andere bekannt sind. Nach einer schnelleren («Verteilungs-»)Phase nehmen die Kurven ca. 48 h post injectionem in der semilogarithmischen Darstellungsart die Form einer Geraden an. Die aus dem linearen Teil der Kurven ermittelten $t/2$ betragen 192–267 h, wobei der mittlere Fehler der Halbwertszeit 1–10% beträgt. Die aus diesen Halbwertszeiten errechneten prozentualen Abbauraten liegen zwischen 6,2 und 8,6%. Unterstellt man bei diesen gesunden Versuchspersonen ein Gleichgewicht zwischen Synthese und Abbau, dann errechnet sich in bezug auf den intravasalen α_2-Makroglobulingehalt die Synthese mit 437–703 mg/die. Umsatzratenbestimmung bei Erkrankungen mit Erhöhung des α_2-Makroglobulinspiegels sind im Gange.

Summary. The turnover of α_2-macroglobulins was measured by quantitative precipitation of the I^{131}-marked protein, using a specific antiserum. In 6 normal persons, the half-life was found to be between 192 and 267 h. The catabolic rates in relation to the intravascular pool range between 437 and 703 mg/day.

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und U. Hagemann

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Effect of the Excision of Leaf Tissues on the Measurement of Their Water Potential with Thermocouple Psychrometer

Two types of thermocouple psychrometer have been used for the determination of water potential in plant tissues[1–4]. Barrs[5] has discussed the merits of these thermocouple psychrometers and has concluded that the Spanner psychrometer[1,2] has advantages over the Richards and Ogata[3,4] instrument. He pointed out that the heat of respiration may become a possible cause of error when using the latter type of psychrometer. When working with the Spanner psychrometer, the author[6] has also reported some other possible causes of error, e.g. contamination of rubber bung, distance between thermocouple junction and the source of moisture, size of thermocouple chamber, and the nature of material under observation. The present note shows that the extent of cutting of the leaf material may also affect the water potential values. This type of error assumes special importance since the excision of the plant tissue is almost inevitable when determining its water potential through the use of the thermocouple psychrometer. The terms water potential and osmotic potential have been used in accordance with the recommendations of Slatyer and Taylor[7], and the free energy unit joules/kg has been used to express the different levels of energy status of water (101.3 joules/kg = 1 atmosphere).

Utilizing the type of thermocouple psychrometer described earlier[6], the water potential of *Pisum sativum* and *Tradescantia vericolor* leaf tissue (from plants growing at field capacity) was determined. In *Pisum sativum* the water potential of two opposite leaflets, one intact and the other cut into five pieces, were determined side by side. Likewise, in *Tradescantia vericolor*, the water potential of two adjacent leaves, one intact and the other again cut into five pieces, were determined. The observations

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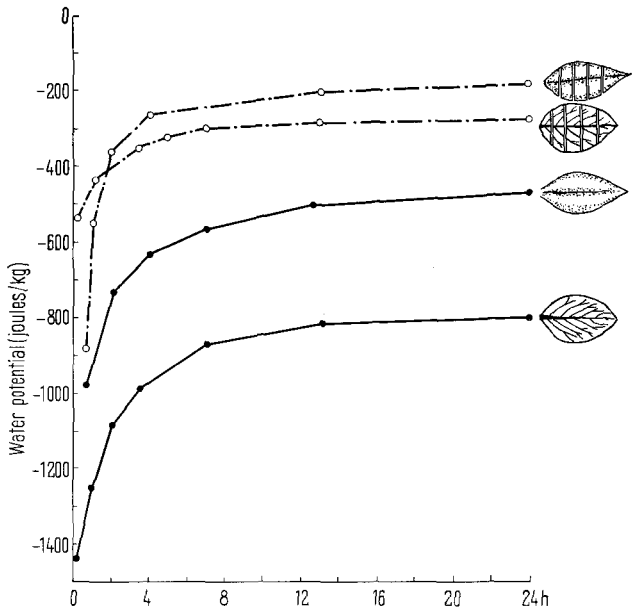

Effect of the excision of leaf tissues on the measurement of their water potential with thermocouple psychrometer 4–24 h after putting leaf material in constant temperature water bath.

were made throughout the period of equilibration and are presented in the Figure.

The results show that, in both the species, comparatively much higher water potential was recorded in the case of cut-leaf material than the uncut material and that the leaf-water potential of the two species, although growing under similar moisture conditions, were different from each other. These observed higher water potential values of the cut-leaf tissue were in contrast to the expected decrease since: (1) The excision of the leaf tissue results in the partial destruction of the cell turgor pressure. For water potential = osmotic potential + turgor pressure (where osmotic potential is negative and turgor pressure positive), the decrease in turgor pressure should obviously result in lower water potential of the excised leaf tissue. (2) The excision of the leaf material increases its rate of respiration. Increase in rate of respiration in turn should also deploy some extra energy from this leaf tissue, consequently further lowering its water potential. Although much further work is needed to explain these findings, it may be mentioned that the results assume special significance when using the thermocouple psychrometric technique for measuring the water potentials of leaf tissues.

Résumé. Le potentiel d'eau, mesuré dans un psychromètre à thermocouple, se révèle être plus haut dans les feuilles coupées que dans les feuilles intactes.

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Carcinogenesis and Regeneration in Newts

The concept of a definite relationship between neoplastic growth and organized development, as envisaged by WADDINGTON[1] and by NEEDHAM[2], has led several investigators to applying these ideas to the problem of regeneration in amphibians. Especially successful were the recent studies of SEILERN-ASPANG and KRATOCHWILL[3], who have shown that chemically induced epitheliomas often show regression and differentiation into non-malignant tissues when a regeneration process is initiated in the organism by amputating a limb or tail. The phenomenon seems to indicate that in periods of intensive secondary development, i.e. regeneration, the organism has an increased capacity to convey developmental information to its undifferentiated cells, converting those with malignant tendency to normal tissues.

We are in a position to contribute data to this concept. Experiments made at Fordham University to test the effect of carcinogenic hydrocarbons (1, 2, 5, 6-dibenzanthracene and 3-methylcholanthrene) on tail regeneration in the newt *Triturus* (*Diemictylus*) *viridescens* failed to produce typical tumours, either epitheliomas or sar-

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