protein synthesis is very active, either for secretion or cell renewal. According to LEBLOND, EVERETT, and SIMMONS[14], the proteins produced in non-growing mammals meet 3 main purposes: (1) the formation of new cells in renewal systems (e.g. intestinal epithelium); (2) the elaboration of secretion (e.g. pancreas salivary gland); (3) intracellular turnover (e.g. muscle cells).

As we can see in Table I, the building of protein molecules to replace the ones broken down by the cell is less affected by chlorpromazine than the secretion and production of new cells. Thus the degree of inhibition in pancreas and intestinal epithelium cells is more pronounced than in smooth muscle cells.

The displacement of cells explains why the intestinal epithelium was found to be more radioactive in the villi than in the crypts of Lieberkühn, which is the actual site of cell renewal. As the sacrifice was 18 h after the labelling injection of ^{35}S-methionine, the cells which were in the crypts at the injection time had attained the sides of the villi by the sacrifice time[15].

When we compare the action of chlorpromazine on cytoplasmic and nuclear uptake of the labelled methionine, roughly parallel results are found (Table II). This is another instance in which a parallelism between nuclear and cytoplasmic protein synthesis is shown[16].

Résumé. Des rats ont été traités avec de la chlorpromazine et ont reçu en suite une seule injection de ^{35}S-méthionine. Des radioautographies des coupes histologiques ont montré que la chlorpromazine a un effect inhibitoire dans la synthèse de la protéine nucléaire et cytoplasmatique. Les cellules qui ont une grande vitesse de synthèse protéique sont les plus affectées.

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[17] The authors wish to acknowledge the help of Prof. L. C. U. JUNQUEIRA for criticism and encouragement, and Miss EDNA FREY-MÜLLER for her skilled technical assistance.

Oxygen Isotopic Composition of Fogs and Rains from the North Atlantic

During a research expedition in the North Western Atlantic ocean, some rain and fog samples were collected, primarily on the fishing banks of Newfoundland and Labrador, during the months of May and June 1961. All the samples have been collected on board the M/S Genepesca I.

The fog samples were collected by means of a long vertical polyethylene wire. At the lower end of this wire, the drops deposited during the movements of the ship fell in a polyethylene container. The greatest care was taken to avoid any contamination by gases from the funnel and by ocean water sprays. Since the air was saturated with water vapour and there were never strong winds during the collection of samples, it can be supposed that this method of collection did not permit any fractionation process. During the collection of the samples, the speed of the ship was rather low (3–4 miles/h).

The isotopic composition of the water samples have been measured, using the method proposed by EPSTEIN and MAYEDA[1]. The analyses have been made with a dual collector mass spectrometer of the same type described by BOATO et al.[2]. The results are shown in the Tables I and II. They are expressed in terms of difference per mil ($\delta_{O^{18}}$) of the ratio O^{18}/O^{16} between the sample and the 'mean ocean water' standard as it was defined by CRAIG[3] with the work of EPSTEIN and MAYEDA[1] as a basis.

Since the vapour pressure of H_2O^{18} is lower than that of H_2O^{16}, the O^{18} content of the atmospheric water vapour in open sea should be lower than that of the oceanic water by about $10^0/_{00}$ under equilibrium conditions. When a fraction of this vapour condenses and fog occurs, the O^{18} content of the liquid phase is higher than that of the remaining vapour. If only a small fraction of the vapour condenses, its isotopic composition will be very close to that of the oceanic water. Such a composition has been measured in samples F4 and F9. The δ values of most of the other

Tab. I. Collecting data and oxygen isotopic composition of fog samples from the North-Western Atlantic

Sample numbers	Collection date	Local time of collection	Position	Temperature (°C)	$\delta_{O^{18}}$ (SMOW)
F 1	4 june 1961	1.00 p.m. 3.00 p.m.	51° 58′ N 54° 25′ W	+ 3	— 2.5
F 2	10 june 1961	5.00 p.m. 6.00 p.m.	53° 55′ N 54° 12′ W	0	— 3.2
F 3	16 june 1961	9.00 p.m. 10.00 p.m.	54° 45′ N 55° 25′ W	— 2	— 2.5
F 4	19 june 1961	1.00 p.m. 3.00 p.m.	54° 57′ N 54° 57′ W	+ 5	+ 0.1
F 5	19–20 june 1961	11.30 p.m. 1.00 a.m.	54° 55′ N 54° 47′ W	+ 2	— 4.4
F 6	23 june 1961	5.00 a.m. 6.30 a.m.	52° 53′ N 54° 34′ W	+ 6	— 0.8
F 7	24 june 1961	3.00 p.m. 7.00 p.m.	52° 16′ N 54° 35′ W	+ 6.5	— 0.9
F 8	24 june 1961	8.00 p.m. 12.00 p.m.	52° 10′ N 54° 25′ W	+ 2	— 3.1
F 9	25 june 1961	3.00 p.m. 4.00 p.m.	51° 48′ N 54° 30′ W	+ 7.5	— 0.2
F 10	26 june 1961	9.00 p.m. 10.00 p.m.	52° 30′ N 53° 40′ W	+ 2	— 3.3
F 11	28 june 1961	9.00 p.m. 11.00 p.m.	48° 53′ N 52° 25′ W	+ 5	— 5.8
F 12	30 june 1961	8.00 a.m. 10.00 a.m.	48° 34′ N 50° 45′ W	+ 8	— 2.6
F 13	30 june 1961	8.30 p.m. 10.00 p.m.	48° 10′ N 51° 30′ W	+ 7	— 1.7
F 14	1 july 1961	6.00 a.m. 6.30 a.m.	47° 40′ N 52° 23′ W	+ 8.5	— 2.7

[1] S. EPSTEIN and T. MAYEDA, Geoch. cosmoc. Acta *4*, 213 (1953).

[2] G. BOATO, R. SANNA, M. E. VALLAURI, and M. REINHARZ, Suppl. Nuovo Cimento *16*, Ser. 10, 215 (1960).

[3] H. CRAIG, Science *133*, 1833 (1961).

Tab. II. Collecting data and oxygen isotopic composition of rain samples from the North Atlantic

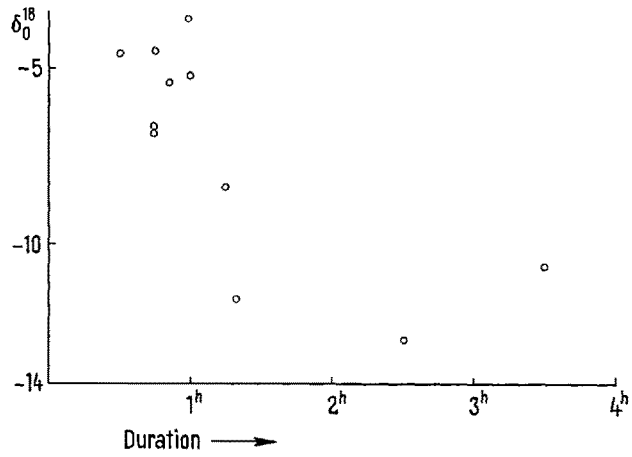
Sample numbers	Collection date	Local time of commencement	Duration	Position	δO^{18} (SMOW)
R 1	23 may 1961	11.30 a.m.	10 min	36° 43′ N 15° 13′ W	— 1.7
R 2	23 may 1961	1.00 p.m.	5 min	36° 44′ N 15° 34′ W	— 3.3
R 3	23 may 1961	9.00 p.m.	5 min	37° 00′ N 16° 50′ W	— 2.5
R 4	24 may 1961	0.30 a.m.	10 min	37° 05′ N 16° 58′ W	— 6.3
R 5	24 may 1961	8.00 a.m.	20 min	37° 23′ N 18° 57′ W	— 5.9
R 6	25 may 1961	8.30 a.m.	10 min	38° 00′ N 22° 14′ W	— 4.1
R 7	27 may 1961	4.00 p.m.	30 min	40° 25′ N 33° 40′ W	— 0.1
R 8	6 june 1961	12.00 a.m.	30 min	51° 46′ N 54° 09′ W	— 4.6
R 9	6 june 1961	8.30 p.m.	1 h 15 min	51° 43′ N 54° 11′ W	— 8.4
R 10	6 june 1961	11.30 p.m.	45 min	51° 47′ N 54° 07′ W	— 6.7
R 11	11 june 1961	5.00 a.m.	2 h 30 min	53° 49′ N 54° 01′ W	— 12.7
R 12	12 june 1961	11.00 p.m.	1 h 20 min	53° 57′ N 54° 07′ W	— 11.3
R 13	13 june 1961	6.00 p.m.	45 min	53° 52′ N 54° 08′ W	— 4.5
R 14	13 june 1961	9.00 p.m.	3 h 30 min	54° 03′ N 54° 09′ W	— 10.6
R 15	14 june 1961	4.00 a.m.	1 h 00 min	53° 56′ N 54° 05′ W	— 3.6
R 16	23 june 1961	4.00 p.m.	1 h 00 min	52° 40′ N 54° 20′ W	— 5.2
R 17	25 june 1961	11.30 p.m.	45 min	51° 26′ N 53° 59′ W	— 6.8
R 18	30 june 1961	10.30 p.m.	50 min	48° 04′ N 51° 36′ W	— 5.4

samples are not much more negative in comparison with oceanic water.

If the condensation process goes on, the O^{18} content of the liquid phase becomes lower and lower tending as a limit to the initial value of the atmospheric water vapour. One can explain in such a way the most negative values measured, e.g. those of the samples F 5 and F 11.

In addition, in this investigation there are two pairs of samples (F 4–F 5, F 7–F 8) in which the second one has been collected only a few hours later than the first one, in the same area, under the same atmospheric conditions. In both cases the first sample has been collected in the afternoon and the second one in the night at a lower temperature; in both cases, the second sample shows an O^{18} content lower than the first one.

From that, one can conclude that, during the period in which samples have been collected, fog was very likely formed by atmospheric water vapour in equilibrium with oceanic water; it is rather improbable that atmospheric water vapour should not be in equilibrium with oceanic



Oxygen isotopic composition and durations of rains during which samples were collected in the North Atlantic (samples R 8–R 18 of Table II)

water as, for instance, vapour which had previously given place to rain. From the comparison of Table I and Table II it is evident that, at the same latitudes, the δ values of rains are always more negative than those of fogs.

The rain samples can be divided into two groups because of the different latitude of collection. While the first seven samples have been collected between 36° 43′ N and 40° 25′ N, the other ones come from latitudes between 48° 04′ N and 54° 03′ N. The samples from the first group show a mean O^{18} content which is generally higher than that of the samples of the second group (see [4] and [5]). Generally the rains at latitudes lower than 41° N have been very short ones and had the character of squalls. Also some rains collected at latitudes higher than 48° N have been rather short. Generally (Figure) the O^{18} content of these short rains is higher than that of longer rains. This is in agreement with the observations of EPSTEIN[4] that normally the O^{18} content of rainwater decreases in time[6].

Riassunto. È stata determinata la composizione isotopica dell'ossigeno in campioni di nebbia e di pioggia raccolti principalmente nell'Atlantico nord-occidentale. I risultati mostrano che la nebbia deriva, almeno in buona parte dei casi, da condensazioni parziali di vapor d'acqua in equilibrio con l'acqua oceanica. Il contenuto in O^{18} delle piogge misurate varia in relazione alla durata ed alla latitudine.

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Über die Ausscheidung von 3β-Hydroxy-17-Ketosteroiden im Harn von Meerschweinchen

PERON und DORFMAN[1] konnten im Harn von männlichen Meerschweinchen 9 verschiedene 17-Ketosteroide (17-KS) nachweisen, isolieren und identifizieren; es handelte sich dabei ausschliesslich um 3α-Hydroxy-17-KS.

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