Table 1. COMPARISON OF THE GROWTH-PROMOTING EFFECT OF SPERMINE AND VARIOUS OSMOTICALLY ACTIVE SUBSTANCES
N. perflava was grown in the defined basal medium of Martin *et al.* (ref. 3) supplemented with 0·2 per cent glucose. *P. tularensis* was grown in the synthetic medium *B* as described in ref. 6. The inoculated tubes were slanted and incubated with continuous shaking at 30°. Growth was estimated in the Coleman Junior spectrophotometer and recorded in terms of optical density. × 100

Additions to basal media	Growth *N. perflava* (48 hr.)	Growth *P. tularensis* (36 hr.)
None	2	9
Spermine, 10 μgm./ml.	68	36
Sodium chloride, 0·1 *M*	40	30
Sodium chloride, 0·15 *M* + spermine, 10 μgm./ml.	68	70
Potassium chloride, 0·19 *M*	50	32
Glucose, 0·1 *M*	31	25
Sucrose, 0·1 *M*	38	28
Mannitol, 0·1 *M*	2	27

spermine could be substituted for each other to a large extent, though maximal rate of proliferation was obtained only when both factors acted in combination (Table 1). Here, too, the growth-enhancing effect of sodium chloride could be duplicated by other salts as well as by non-electrolytes.

In the course of this work, it was observed that washing *P. tularensis* cells with distilled water instead of the usual saline resulted in a decrease of their viability as shown by prolongation of the lag phase or even by complete suppression of multiplication. This deterioration could be prevented by adding some micrograms of spermine to the distilled water used for washing. Thus, in this respect again, sodium chloride and spermine proved to be interchangeable.

The results presented so far seem to justify the general conclusion that both the osmotic agents and the polyamines control, each independently and by a different mechanism, some definite cell function essential for growth. It appears likely that this vital function may be related to permeability of the cell membrane; no conclusion as to the exact mechanism involved is yet possible.

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[1] Herbst, E. J., and Snell, E. E., *J. Biol. Chem.*, **181**, 47 (1949).
[2] Guggenheim, M., "Die biogenen Amine" (3rd edit., Basel, 1940).
[3] Martin, J. H., Pelczar, jun., M. J., and Hansen, P. A., *Science*, **116**, 483 (1952).
[4] Mager, J., Traub, A., and Grossowicz, N., *Nature*, **174**, 747 (1954).
[5] Nemes, J. L., Pelczar, jun., M. J., and Doetsch, R. N., *J. Infect. Diseases*, **88**, 156 (1951).
[6] Traub, A., Mager, J., and Grossowicz, N. J., *Bacteriol.* [**70**, 60 (1955)].

Systematic Position of the Euphausiacea

ELSEWHERE in this issue of *Nature* (see p. 911) I have mentioned that, although the idea originated with Kemp, Gurney was the first to place the Euphausiacea in the order Decapoda, which he divided into two suborders, Euphausiacea and Eudecapoda. Gurney never intended to include the Euphausiacea in his Ray Society monograph, "Larvæ of Decapod Crustacea" (1942)—Euphausid literature is omitted from the earlier companion volume, "Bibliography of the Larvæ of Decapod Crustacea" (1939)—but a chance remark of mine prompted him to do so when his manuscript was almost, or quite, finished. This resulted in some inconsistency of treatment of the Euphausiacea, partly because he sometimes omitted to alter 'Decapoda' to 'Eudecapoda' where necessary, partly because he had already mentioned the Euphausiacea (as an independent order) here and there, in the same way as he mentions the Stomatopoda, for example. He did not explain why he altered the classification; Kemp's idea was quite new to him and he doubtless misunderstood what I said. That he had not considered the matter carefully is proved by the letter which he sent me in 1949 after we had again discussed the systematic position of the Euphausiacea (see p. 911 for his suggested solution, which has much in its favour). Incidentally, Nakazawa's claim, referred to by Gurney[1], that an economically important Japanese species of *Sergestes* has a free nauplius larva is sound. Recently I had the relevant passage translated; Nakazawa collected sixty eggs on August 6, from the fishing grounds, and from these he obtained the three naupliar stages which he figured; eighteen of the third-stage nauplii metamorphosed to the first-stage protozoea, which is an undoubted Sergestid larva.

All carcinologists would, I think, agree that the general classification of the Decapoda is in urgent need of revision. According to Gurney (ref. 1, p. 11), "the four main difficulties in framing a satisfactory system for the Decapoda are: (i) relation of the Euphausiacea to the Decapoda; (ii) relation of the Penaeidea to the Caridea; (iii) position of the Stenopidea and of the Thalassinidea; (iv) relation of the Dromiacea to the Brachyura"; and there are others. On embryological grounds, Gurney altered the position not only of Euphausiacea but also of Stenopidea, Thalassinidea and Dromiacea. Moreover, he maintains that the Thalassinidea is not homogeneous but comprises a homarine and an anomuran group. It would be interesting to follow this up with reference to adult morphology, to see whether or not Gurney's views can be substantiated. In a forthcoming paper I hope to discuss more fully the systematic position of the Euphausiacea; as I also intend to consider the relationships of the Dromiacea and of the Gymnopleura, and perhaps of other groups as well, it may be some time before the work is finished. Meantime I would welcome any suggestions or comments that may occur to other specialists.

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[1] *Discovery* Reports, **20**, 4 (1940); Ray Society Monograph, 1942, 39, footnote.

Chainia, a New Genus of the Actinomycetales

AN actinomycete isolated from soil in Poona showed on examination characters representing an undescribed genus. The species was saprophytic, aerobic and mesophilic, growing readily on the various nutrient agar media employed. The colonies on glucose–peptone agar are faint cream-yellow in early stages, with well-developed fine non-septate mycelium, 0·4–0·8μ in diameter and branching in a monopodial type. The hyphæ developing in a radiating manner grow into the substrate, giving a lichenoid appearance. There is no true aerial mycelium formed, though growth at later period appears compact and raised. The unseptate mycelium never fragments into bacillary or coccoid forms and is Gram-positive and non-acid fast.

The chief distinguishing character of the genus is the formation of spherical sclerotic granules in large