Regenerating hepatic tissue *in vivo*, therefore, shares with malignant cells the capacity to take up intact protein molecules. It has to be remembered, however, that hepatic parenchymal cells, even after minor injury, are known to be permeable to serum proteins[3], and further studies must be made on other rapidly growing *in-vivo* systems before any generalization can be made. Moreover, we have yet to learn whether the uptake of intact protein molecules is attributable to increased permeability of the cell membranes of rapidly growing tissues or to a more active process, and also how such intracellular serum proteins contribute to the increased metabolic demands of rapidly growing systems.

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Existence in the Thymus of a Factor protecting the Skin of the Mouse against the Induction of Skin Cancers induced by 20-Methylcholanthrene

MILLER[1] has shown that thymectomy in the neonatal period of life favours the development of skin benzpyrene cancer in mice.

Vandeputte and De Somer[2] have shown that rats thymectomized during the first days after birth are still susceptible to the induction of cancers by polyoma virus during several weeks after birth.

We have shown[3] that subcutaneous isologous grafts of neonatal thymus repeated every 14 days protect the mice, to a certain extent, against the induction of cancer by 20-methylcholanthrene. Furthermore, we have shown that repeated injections of homogenized neonatal thymus also protect the mice against the same type of cancer, suggesting the possibility of the existence in the thymus of an extracellular factor or factors protecting the skin of the mouse against induced cancer. However, the existence of such factor or factors has not been demonstrated in this last experiment[4].

Therefore, we have undertaken another experiment in order to investigate the possible existence of such a factor or factors in neonatal thymus of the mouse. We have selected 3 groups of 60 mice of the same age and the same sex (50 per cent of each sex in each group) belonging to an isologous strain, the *L* strain of the Cancer Institute of Louvain. One group has been kept as control and painted 3 times a week with two drops of a 1/400 20-methylcholanthrene solution in ether, up to a total of 23 paintings. The two other groups have been painted similarly, but in addition have been injected every 14 days with thymus extracts, prepared as follows: every week, during the whole course of the painting period, 60 neonatal thymuses from young mice, aged 2–5 days, have been thoroughly homogenized in a Potter tube and then suspended in normal saline. This suspension has then been centrifuged for 30 min at a speed of 40,000 r.p.m. The supernatant, after this centrifugation, has been injected to the second group of our experimental animals. The sediment has then been re-suspended in normal saline and injected to the third group of our animals. Each animal of those two groups received thus every 14 days the corresponding amount of more or less one neonatal thymus, either in the form of the sediment or as supernatant. After the painting period the same injections were repeated every 14 days until the end of the experiment. There is no doubt that the supernatant represents an extract of thymus in normal saline devoid of cells. The results of the experiments are presented in Table 1.

Table 1

	No. of animals alive after 60 days	No. of tumours after (days) 60	90	120	150	180 *	No. of animals alive at 180 days	No. of animals without tumour at 180 days †
Controls	63	2	7	20	24	32	23	7
Supernatant	58	4	4	6	10	15	33	21
Sediment	39	1	2	2	6	10	21	7

* $\chi^2_{1a} = 6{\cdot}89$ $(1/2)P < 0{\cdot}01 = P < 0{\cdot}005$
$\chi^2_{1s} = 5{\cdot}29$ $(1/2)P < 0{\cdot}05 = P < 0{\cdot}025$
† $\chi^2_{1a} = 4{\cdot}72$ $(1/2)P < 0{\cdot}05 = P < 0{\cdot}025$
$\chi^2_{1s} = 0{\cdot}015$ $(1/2)P < 0{\cdot}70 = P < 0{\cdot}35$

The differences between the results of the three groups are marked. Both groups injected with thymus show, during the whole course of the experiment, a marked delay in the development of cancer. At the end of the period of observation (180 days), there is still a marked difference in cancer incidence among the three groups. Moreover, the number of animals surviving at the end of the experiment without tumours, benign or malignant, is markedly higher in the group injected with the thymus supernatant. On the other hand, there is no marked difference in cancer incidence between the group injected with the supernatant and the group injected with the sediment after centrifugation. This, obviously, shows that only part of the active factor or factors, soluble in normal saline, has been extracted through this fractionation and that an important fraction of those factors remains in the sediment. We know nothing yet about the chemical nature of this factor or factors. We do not know either if the factor or factors are heat-resistant or not. Nor do we know if a heterologous extract of thymus would be active.

From the results of this experiment, it may be concluded that there exists, in the neonatal thymus of the mouse of strain *L*, a factor or a group of factors soluble in normal saline protecting the skin of the mouse of the same strain against the incidence of cancers induced by 20-methylcholanthrene.

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Blastomyces (Paracoccidioides) brasiliensis in Africa

SINCE the discovery of "South American Blastomycosis" by Adolfo Lutz in 1908, it has been generally accepted that the disease is confined to South America. The few cases reported outside this region are of patients who lived for years in South American countries and probably contracted the "Lutz disease" there[1–8].

A sample of spinal fluid taken from a four-year-old Ghanaian girl living in Accra was sent to my laboratory. The clinical diagnosis was miliary tuberculosis. A few hours later the child died. Specimens of heart and liver tissue were taken. The spinal fluid was clear and apparently normal. The fragments of heart and liver tissue were covered with miliary abscesses. After centrifugation the spinal fluid was examined by routine procedures in dry and wet mount preparations. Spheres with refractile walls ranging from 5 to 30μ diameter were seen. In indian ink preparations no capsules were found. The heart tissue was ground with saline and the liquid phase was examined in wet mount preparations. In addition to the