zurückging. P zeigt demnach *in vitro* einen ähnlichen Effekt wie Cortison.

In der folgenden Versuchsreihe untersuchten wir *in vitro* die Wirkung von verschieden verdünnten P-Lösungen auf die Tätigkeit der von Menschen und Kaninchen stammenden weissen Blutzellen. Die Resultate werden in der Abbildung gezeigt. In der Konzentration 0,1 γ/ml ist eine schwache, aber deutliche Aktivitätssteigerung zu beobachten. Bei höherer Konzentration tritt eine Hemmung ein. Ein ähnlicher Effekt wurde auch in bezug auf die Migration der Leukozyten beobachtet[7]. Nach unseren Feststellungen verfügt P demnach bei der Leukozytenphagozytose über einen direkten zellulären Angriffspunkt.

Die Untersuchungen mit Na-succinat ergaben, dass die Phagozytose der Leukozyten in Konzentration von 10^{-3}–10^{-6} nicht signifikant beeinflusst wird; nur bei einer Verdünnung von 10^{-4} wird die Zelltätigkeit um 16% gesteigert.

Die *in vitro* ermittelte Wirkung macht indessen nur etwa 40% der *in vivo* festgestellten aus. Liessen wir Rattenleber nach JANCSO[8] mit P-haltiger Ringer-Lösung durchströmen, so war die Wirkung der Perfusionsflüssigkeit auf die Phagozytose beträchtlich erhöht und erreichte selbst den *in vivo* beobachteten Wert[9]. Bei den mit Methioninmangeldiät gefütterten Tieren unterblieb die Erscheinung. Nach diesen Untersuchungen scheint es, dass sich P in der Leber zu einem wirksameren Hormonprinzip umgestaltet und dieser Prozess mit der Methylierung zusammenhängt[10].

G. LUDÁNY, J. RIGÓ, J. SÓS und GY. VAJDA

Patho-Physiologisches Institut der Universität Budapest, 1. August 1959.

Summary

Intravenous administration of 3 mg/kg body weight prednisolon-Na-succinate (P) decreased, after 24 h, by 30% the bacterial phagocytosis of leukocytes of rabbits. After 48 h, the effect became a slight increase. At a dosis of 0·3 mg/kg, P exerts a stimulating effect which ceases within some hours. In *in vitro* experiments, it showed increased or decreased action depending upon the concentration. When perfused through the liver, the efficacy of P rises strikingly.

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Histochemistry of Mehlis' Gland and Egg-Shell Formation in the Liver Fluke *Fasciola hepatica* L.

It is now well known through the researches of several workers that the egg-shell in trematodes and pseudophyllidean cestodes consists of quinone-tanned protein and the precursors of the tanning system have been shown to be the products of vitelline cells. In a recent review, CLEGG and SMYTH[1] suggest and adduce evidence to indicate that the secretion of Mehlis' gland does not become part of the egg-shell as they are histochemically dissimilar. According to HANUMANTHA-RAO[2] Mehlis' gland secretion is probably concerned with the release of shell formative substances through its stimulation of vitelline cells and further he shows quite clearly that egg-shell construction in *Fasciola hepatica* occurs in the uterus but not in the Mehlis' gland-associated ootype. The exact chemical nature of the gland secretion however, remained obscure but recently extended histochemical investigations have provided more accurate interpretation of the histochemistry of this gland in *F. hepatica*.

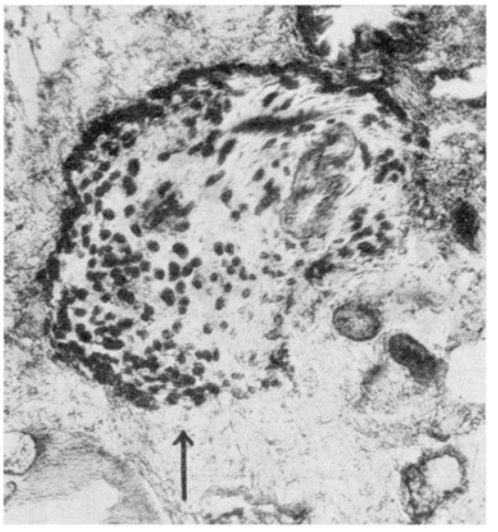

Fig. 1. – Section of *F. hepatica* showing Mehlis' gland (↑) positive to Baker's acid hematein. Fixation in formaldehyde-calcium and postchromation

It has been established now that aqueous azur I and azur I-Schiff stain both the shell material and Mehlis' gland cells. It had been reported earlier that the latter stain was not effective upon the gland cells as the material used was fixed in Bouin's and a feeble reaction that resulted was not detected. Fixation in formol-calcium followed by postchroming as suggested by BAKER[3] gave a recognizable positive reaction. The gland cells gave distinctly positive reactions with BAKER's acid hematein, Sudan black B, the copper phthallocyanine method of PEARSE[4], and the periodic acid-Schiff technique, while Nile blue imparted a blue colour. In parallel sections of material fixed in weak Bouin's followed by pyridine extraction as recommended by BAKER, the gland cells were negative to the above tests. The positive BAKER's acid hematein test (Fig. 1) and Sudan black B reactivity (Fig. 2), followed by a negative result (Fig. 3) in pyridine extracted material, are considered as the most sensitive histochemical procedures so far known for the recognition of phospholipids. Again, CAIN[5] emphasized the usefulness of the Nile blue test in distinguishing acid lipids like phospholipids which develop a blue colour in contrast to the neutral fats which turn red. All these tests give confirmatory evidence of the activity of Mehlis' gland in *F. hepatica* as elaborating and secreting mainly a phospholipid.

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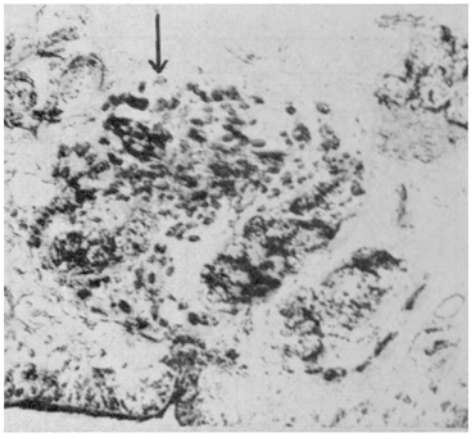

Fig. 2. – Section of *F. hepatica* showing Mehlis' gland (↓) positive to Sudan black B. Fixation in formaldehyde-calcium and postchromation

The shell and its precursors are negative to all the phospholipid tests except aqueous azur I, azur I-Schiff, and Nile blue when material fixed in Bouin's was used. With formol-calcium or Bouin's fixed specimens subsequently deaminised the shell material at all stages remained refractory to the azur and Nile blue tests. It is thus apparent that these stains react with $-NH_2$ groups of shell material since these groups are blocked by formaldehyde[6,7] or removed when deaminised. Nuclei of cells stained by the azur technique may well rely upon phosphoryl radicals as suggested by LOVE and LILES[8] for toluidine blue-molybdate. This would also account for the non-impairment of the reaction of Mehlis' gland cells to azur and Nile blue tests even after deamination.

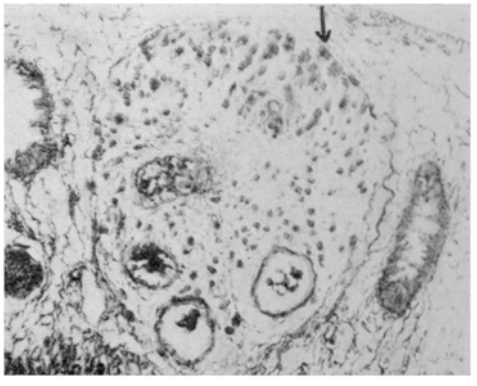

Fig. 3 – Section of *F. hepatica* showing Mehlis' gland (↓) negative to Baker's acid hematein. Fixation in weak Bouin's followed by pyridine extraction

Hence neither the egg-shell at any stage nor its precursors give phospholipid reactions, whilst Mehlis' gland secretion is positive to all the tests. Conversely there is no indication whatsoever that Mehlis' gland secretion is a participant in the tanning system that is so characteristic of egg-shell formation. Thus the secretion would probably be connected with some mechanism effecting the release of egg-shell precursors from the vitelline cells but does not itself form part of the shell. It is tempting to compare this mechanism with the process of hemolysis where lysolecithin derived enzymatically from lecithin serves as a powerful hemolytic agent[9]. It could be suggested here that Mehlis' gland secretion may be closely related to lecithin and is converted by an enzyme system into an agent capable of effecting release of the shell precursors from the vitelline cells, but these possibilities are the subject of further research.

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Zusammenfassung

Histochemische Untersuchungen der Mehlischen Drüse von *Fasciola hepatica* erweisen deren Phospholipidabsonderung. Es wird auf die Möglichkeit einer engen Beziehung des Phospholipids zu Lezithin und seine enzymatische Aktivierung zur Herauslösung von Eischalenprokursoren hingewiesen.

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Two New Pteridinic Pigments in *Drosophila melanogaster*

From the compound eye of *Drosophila melanogaster*, LEDERER[1] extracted a red pigment, which was named drosopterin since it was considered to be a pteridin derivative. Further studies showed that the red pigment consists of a number of chemically related pteridines. By talc column chromatography, MAAS[2] observed the resolution of the pigment into several coloured layers; HEYMANN *et al.*[3] were later able to separate some components of the red pigment by chromatography on silica gel column.

HADORN and MITCHELL[4] separated by paper partition chromatography a number of fluorescent substances and eye pigment components. Using this technique they studied many eye colour mutants, affecting the inheritance of the red pigment; it was found that many mutant genes block the synthesis of the red pteridines or decrease the amount of pigment fixed in the ommatidia. VISCONTINI *et al.*[5] isolated from wild type flies three compounds, named drosopterin, idodrosopterin, and neodrosopterin; some details on the chemical structure of these substances

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