urements were made with the Benedict Student Apparatus in the strictly post absorptive condition. In no case was a heavy meal taken the previous night. The subjects were examined in their own homes after an undisturbed night's rest. The position adopted was the recumbent one. For the purposes of comparison I have entered the results on Professor W. W. Keen. In none of these cases is there any obvious evidence of a decreased metabolic rate as the result of advanced age. The single prediction which falls much below the centre point is that of E. W. H., whose rate is —9.2 by Aub and DuBois' prediction. This may be accounted for by his unusual configuration owing to his great height and slight weight.

In Aub and DuBois' discussion, the lowering of the metabolic rate is assumed on the basis of 39.7 calories per M^2 per hour, a value which is the average for subjects between the ages of 20 and 50. The average lowering was 12%. If one were to calculate Professor Keen's heat exchange on this basis he would give —10.6 and J. C-B. —17.6%.

With these subjects the exchange averages about 2 cals. per M^2 per hour lower than the men of Aub and DuBois' series. This may be due partly to the method of measurement and partly to the very complete absence of movement which was obtained with my exceptionally intelligent and co-operating group. The very small and active female subject gives a value close to that obtained with Professor Keen.

The results obtained do not afford any ground for assuming that the slope of the curve of Aub and DuBois for subjects between 20 and 70 years of age changes after the latter age is reached.

4588

Spectrographic Examination of Pellagrins' Sera.

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That exposure to direct sunlight produces or intensifies the erythematous eruptions on the exposed parts of the bodies of pellagrins is an opinion of many observers; the underlying cause of this apparent photo-sensitization is, however, entirely obscure. The auto-experiment of Meyer-Betz[1] with hematoporphyrin and the skin manifesta-

[1] Meyer-Betz, F., *Deutsches Archiv. f. Klin. Med.*, 1913, cxii, 476.

tions of hydroa-aestivalis, buckwheat disease, and other forms of apparent sensitization among the lower animals[2] at least justify the suspicion that some toxic substance is circulating in the blood stream.

With the object of determining whether or not the spectrum of pellagrous differed materially from that of non-pellagrous serum, a series of 13 sera was examined with a Hilger quartz spectrograph.

Each case had been admitted to the New Orleans Charity Hospital and all were in the acute stage with characteristic eruption, usually with marked oral and gastro-intestinal symptoms. The serum was obtained in the following manner: After a 12 hour fast blood was drawn from the median basilic vein, using a dry needle and glass syringe. Coagulation was allowed to take place in a paraffin coated tube. The serum was pipetted off and centrifuged at 3000 R.P.M. for 10 minutes and again pipetted off.

Our principal endeavor was to prove the presence or absence of hematoporphyrin in the serum, and our second to detect if possible any deviation of the spectrum of pellagrous from that of normal serum. The instruments used were a large E 4 Hilger quartz spectrograph and a quartz cell measuring ¾″ by ¾″ by ⅛″ internal diameter. An arc between 2 adjustable rods of soft Norwegian iron served as the source of radiation. This arc (Fig. 1) affords an efficient source not only for the visible, but for the ultra violet part of the spectrum as well.

In no instance were we able to detect sufficient difference between the spectra of the normal and the pellagrous sera to warrant the con-

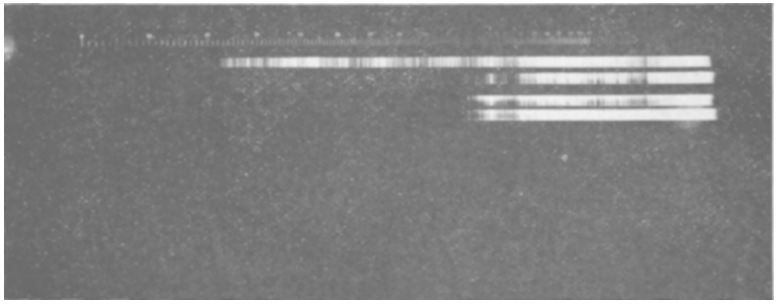

FIG. 1.

Spectrograms of normal and pellagrous serum. The first spectrogram is of the iron arc (6 A, 35V), exposure of 20 seconds. The second spectrogram is of a sample of normal serum, 3 minutes exposure. The next two spectrograms are of samples of pellagrous serum taken from two different patients, 3 minutes exposure.

[2] Hausmann, W., *Grundzüge der Lichtbiologie und Lichtpathologie.*

clusion that they were not spectroscopically identical. Furthermore, comparison between normal serum containing traces of hematoporphyrin and pellagrous serum left no room for doubt that this substance, at least in any detectable quantity, is not present in the circulating blood of pellagra victims.

Three and one half liters of urine from an acute case were concentrated *in vacuo*, extracted with alcohol, the residue from the alcohol evaporation taken up with acid, and the examination carried out in the usual manner. The spectrogram showed no evidence of the presence of hematoporphyrin.

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A Crystalline Substance of the Hypophysis Which Promotes Follicular Growth.

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While working with an acid alcohol extract of the anterior lobe of the pituitary body, according to the earlier method of Hisaw, Fevold, and Meyer,[1] it was found possible to produce 2 very different ovarian reactions depending upon the dosage used. When a *small* amount of the extract was injected into adult rats, follicular growth increased and the rats remained in a condition of oestrum much longer than normally. On the other hand, if a *larger* amount of the same extract was injected the follicles in the ovary became atretic with the formation of corpora lutea without ovulation, the animal remaining in a state of dioestrum.

Attempts were then made to separate the extract into fractions which would give one of the above mentioned physiological effects without the other. This was done by following the unpublished technique used by Hisaw in making an extract of corpus luteum hormone. An acid alcohol extraction of desiccated anterior lobe was, during the process of purification, separated into one fraction which was soluble in absolute alcohol and one which was not. From the latter a crystalline product was secured which induces precocious sexual maturity. Such crystals when injected in aqueous solution into 18 day old mice, in amount equivalent to ½ gm. of fresh material per day, invariably caused the vagina to open in from 2 to 3

[1] Hisaw, F. L., Fevold, H. L., and Meyer, R. K., *Phy. Zool.*, 1929, in press.