ciple of anomalous dispersion opens a way to account for the connection between solar phenomena and terrestrial disturbances.

There is a striking feature in the manifestations of solar influence on meteorological and earth-magnetic elements, which it is especially difficult to explain by other principles, namely the circumstance that this cosmical influence does not affect the illuminated hemisphere uniformly, but often appears to act variously on different regions of the Earth, although the solar parallax is only 8.8″

This peculiarity of the solar influence, as well as the divers periodicities observed in the variations of meteorological and magnetic elements, may be readily explained as consequences of the irregularities of the solar radiation field, which in their turn are caused by surfaces of discontinuity.

Our aim has been also to show, that even when supposing the solar output to be constant, periodical alterations in the frequency of spots, faculae and prominences and in the appearance of widened spectral lines must result from the mere change of the Earth's position relative to our rotating luminary. The 11-year period, especially, seems to follow as a natural consequence from these considerations.

It may be that we have touched here the only efficient cause of the periodicities noticed and that there really remains no ground for the admission of a variable solar activity. This latter inference we have, however, not proved, but for the sake of argument taken for granted.

Zoology. — *"The process of involution of the mucous membrane of the uterus of Tarsius spectrum after parturition."* By Prof. HANS STRAHL of Giessen. (Communicated by Prof. J. D. VAN DER WAALS, on behalf of Prof. A. A. W. HUBRECHT).

I am indebted to Professor HUBRECHT for some exceedingly interesting specimens of uteri of Tarsius spectrum, which enable me to throw some further light on the different phases of the process of involution gone through by the uterus during this animal's puerperal period.

This material was especially valuable as I had an opportunity, on previous occasions, of examining the same process in a series of other mammalia, and I am now enabled to determine how far Tarsius agrees with the forms hitherto under observation, and where it differs from them.

I had a considerable number of uteri at my disposal, some from the

latest period of pregnancy; a great many dating shortly after delivery, others again of later date, and some showing the condition of the uteri in a non-puerperal or non-pregnant state.

Before summing up briefly, in this paper, the results of my experiments, I must at once point out that the involution process in the case of Tarsius, throughout its development, takes its own peculiar course and is unlike any of the other forms of mammals that have had the uterus carefully examined up to now.

As far as we know up to the present, we can divide the mammalia with so-called full-placenta, (all classified under the heading of deciduata in the old-fashioned terminology), into three groups according to the process of involution. In the species of the first group, to which man and the monkeys belong, the placenta is spread out flatly on the inside of the uterus while in the mucous membrane, which has turned into decidua vera, the epithelium is entirely absent.

In the second group the placenta is also spread out over the entire inside of the uterus, but in addition to this the womb is covered throughout with uterus epithelium. Such uteri are found in carnivores. In the rodents we often meet with the third form; here, towards the end of gestation, not only is the womb covered with cell-tissue, but this epithelium also runs from the fimbriae right underneath the placenta, undermining it till it is finally only adhering to the walls of the uterus by a slender cord, carrying the vessels.

It is evident that, — taken as a whole class, — the uteri of the 3rd group will resume relatively quickly their non-puerperal appearance, while those of the first-named have to go through a complicated process of involution.

We may add at once that Tarsius belongs to the third group. The lumen of the uterus gravidus just before parturition was found to be entirely covered with epithelium which ran underneath the rim of the placenta towards the centre of it, up to the connecting tissue-string, carrying the vessels of the placenta.

As already described by HUBRECHT in his excellent work on the placenta of Tarsius, we find in this placenta-cord conglomerations of uterus-glands, the cell-tissue of which present every possible phase of involution, while others are covered with well-preserved cells. These remains of glands in the placenta play a prominent part in the puerperal involution.

In two of the puerperal uteri I find the placenta still existent; I think it possible that here it is so far a question of physiological and not of pathological circumstances, as perhaps the placenta,

instead of being at once thrust out after the parturition, has remained for a little while in the mother's genital ducts.

Once the placenta gone, the seat of the placenta in the mucous membrane of the uterus can be traced microscopically or by means of a magnifying glass for some considerable time. It is found to protrude above the surrounding mucous membrane like a round or oval-shaped body which I will call the placenta-bed.

This bed, as we learn from the microscopic preparations, is limited by the accumulation of the remains of the glands lying along the vessels situated in the placenta-cord, which I will give the name of "paravascular epithelial tubes" and in the centre of which the remains of the vessels of the placenta in a state of thrombosis, form a "placenta-plug".

By the side of the placenta-bed the mucous membrane forms little folds which often protude into the lumen of the uterus in the shape of vesicle-shaped cavities.

Among the changes that now set in during the process of involution we have to distinguish between those which take place independently, in the material at our disposal, and those which are noticeable from a topographical point of view.

As regards the first, even during pregnancy so much material has been accumulated for the formation of the new mucous membrane — the changes in which will only be described here — that it has now really become a question of elimination of the superfluous. It is especially epithileum which is got rid of, as far as dispensable, by its being shed.

Topographically two things are happening. At what used to be the seat of the placenta we find as paravascular epithelial tubes remains of uterus-glands, in considerable number, while in the other sections of the womb there is a small number only of these uterus-glands.

In both the uterus-horns of the non-puerperal uterus the glands which in this condition of the womb are of a narrow and elongated shape, run close together and are equally distributed, but this condition can only be arrived at by means of two simultaneous events: At the recent seat of the placenta the material of the large and wide paravascular vessels is almost entirely got rid of by its dying off. A little of it survives, to form the nucleus of fresh uterus glands.

In the other parts of the womb a large number of new glands are developing at the surface of the epithelium in the same way as the glands are growing during the time of pregnancy, namely

through the forming of small epithelium plugs, growing downwards from the surface.

And while the whole uterus is trying to regain its normal shape by means of contraction of all its muscles throughout, the mucous membrane must of course shrink considerably; this process follows new lines, different from those which I have so far met with in any of the puerperal uteri of mammalia, hitherto examined.

How this involution process progresses will be described in details by Dr. W. KURZ in an exhaustive work, freely enriched with illustrations, and in which due attention is paid to the works of reference written on the subject.

Mathematics. — "*Series derived from the series* $\Sigma \frac{\mu(m)}{m}$." By Prof. J. C. KLUYVER.

By $\mu(m)$ we denote an arithmetical function of the integer m, which equals 0 if m be divisible by a square, and otherwise equals $+1$ or -1, according as m is a product of an even or of an odd number of prime numbers.

The series

$$\sum_{m=1}^{m=\infty} \frac{\mu(m)}{m} = 1 - \frac{1}{2} - \frac{1}{3} - \frac{1}{5} + \frac{1}{6} \ldots\ldots + \frac{1}{26} - \frac{1}{29} - \frac{1}{30} \ldots\ldots$$

was considered by EULER, who concluded that it converged towards 0, a theorem only recently proved by von MANGOLDT (1897) and by LANDAU (1899).

In this paper it will be shewn that in innumerable ways we may select from EULER's series infinite groups of terms, each of these groups again constituting a convergent series.

In fact we may assume a linear congruence

$$x \equiv h \ldots\ldots (mod.\ b)$$

and from EULER's series retain only those terms the denominators of which are solutions of the congruence.

From

$$T_{1,0} = \sum_{m=1}^{m=\infty} \frac{\mu(m)}{m}$$

we get thus the new series

$$T_{b,h} = \sum_{m=0}^{m=\infty} \frac{\mu(mb+h)}{mb+h}$$