required is to multiply this slope by N expressed in the special time-scale adopted (for example, 30 min. is, in this instance, 4 units), and the usual manometer constant.

This method of calculation is, of course, applicable with appropriate modifications to any process in which the intervals of the independent variable can be equally spaced.

A point of interest emerging from the above is that whereas it is considered that four points are a minimum for determining the slope of the line, the number of observations should always be even. By using an odd number, the mean and median are the same, Δt of the median reading is zero, and consequently the reading is unnecessary, as it does not enter into the calculation.

Many statistical procedures are so cumbersome in practice that their routine use becomes too time-consuming, despite their undoubted value. Therefore any simplification in computation such as is presented here reduces the application of these methods to a process which can be very easily applied to routine work, with a consequent marked increase in precision.

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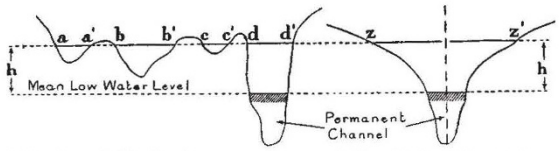
Some Characteristics of the White Nile and Sobat Flood Plains

The recent Egyptian proposals for the control of the Nile[1] have led me to make a detailed study of certain features of the White Nile and River Sobat. I have shown[2] that on the White Nile the total width of the water surface varies approximately as the square of its height above the normal low level all the way along the river; and that this relationship is on the average fairly constant for long stretches, in spite of large local variations. Thus for some purposes the river bed, with its complicated and varying channels, may be 'idealized' into a simple and symmetrical trough with banks which are approximately parabolic in profile (see diagram). This 'idealized trough' makes it comparatively simple to estimate the surface area and also (by integration) the contained volume at any stage of the flood for any length of the river, by using a mean of comparatively few cross-sections.

In this way detailed analyses have been made of sixteen floods on the White Nile between Malakal and Renk, at which point discharges have been measured regularly. It was possible from these analyses to obtain a figure for average evaporation depth in the dry season which agreed well with values assumed previously (average of Piche tube readings at Malakal and Renk over several years multiplied by 0·5); to estimate the mean depth of water absorbed by the flood plain during the rising stage; and by comparing the observed and computed discharge differences at the two points to make for each flood an estimate of the amount of water which had flowed into the river from tributaries entering between them. This last item was confirmed in years when it was exceptional by qualitative records of their flow.

The River Sobat enters the White Nile just above Malakal and is mainly responsible for its fluctuations.



Actual and idealized cross-sections of the White Nile Valley. The vertical scale is exaggerated about 200 times. ($zz' = aa' + bb' + cc' + dd'$ for all values of h)

Unfortunately, almost no cross-sections of the Sobat valley have been measured; but an estimate of its average cross-section between the discharge sites at Sobat Head and Hillet Doleib was made by reversing the form of analysis described above, and applying it to the rising stage of the Sobat flood. It was assumed, as was found on the White Nile, that rainfall and evaporation virtually cancelled out; that the mean absorption depth was the same; and that the profile of the banks of the idealized trough was also approximately parabolic. The constant of this parabola could then be obtained in terms of the measured discharges at the ends of the trough and of the average maximum rise all the way along it, which was obtained from gauge readings. Values of the constant derived in this way from five separate floods had a mean value of 28·5, with a range of 6·2 and a probable error of the mean of just less than unity, or about 3 per cent.

The 1929 air survey of these rivers (which contains no contours) shows on both a feature marked as "permanent marsh", and on the White Nile this was found to correspond closely to the maximum area inundated by a flood of average height. Using the parabolic constant already obtained, I therefore computed the area flooded by an average rise of the Sobat (the mean of thirty years) and found that it agreed within 15 per cent with the area of the corresponding feature as scaled off the air survey maps.

There seem, therefore, to be grounds for supposing that on the Sobat the bed formation is similar to that shown on the White Nile by the measured cross-sections. Moreover, this method of 'idealization', and the analysis based on it, may be applicable to similar rivers elsewhere in the world. If so, it would seem to be possible either to analyse their floods in considerable detail even if comparatively few cross-sections of their valleys exist; or to obtain an idea of the average cross-section of a reach by consideration of the gauge readings along it and of the discharges measured at its ends.

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[1] Hurst, Black and Simaika, "The Nile Basin", vol. 7.
[2] Wright, J. W., *Geograph. J.* (in the press).

Oxidation of the Coagulation Factors

The results of our previous work point to the fact that oxidation hinders the clotting of blood, whereas reduction accelerates it[1]. It could be inferred from other experiments that respiration, by means of its regulation of oxygen tension, has an important effect on the coagulability of the circulating blood[2].

In the present work we investigated the effect of oxidation of certain coagulation factors on their coagulant efficiency. Experiments were carried out in which separated clotting components and whole plasma were exposed to the action of molecular oxygen, which was passed through them in a flotation vessel. During these experiments, samples were