Intended for use
Jan. 6,1926

A Science Service Feature

? WHY THE WEATHER ?

Mailed Dec. 30,1925

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COMPUTED WEATHER

"Weather prediction by numerical process" by L. F. Richardson, is the simple title of a quarto book of 236 pages in which one mathematical meteorologist has shown the ability and patience required to forecast the weather as astronomical events events are forecast.

Present weather forecasting is largely by types. The weather tomorrow is likely to be about the same as that on the day following other occasions when today's sort of weather occurred. But the weather never exactly repeats itself, so this style of forecasting can never become exact. The alternative is to start with the known condition of the weather and compute the future from all the trends in progress and all the physical factors influencing the weather. Seven main equations are necessary, three for air motion north or south, east or west, and up or down, one for indestructibility of mass, two for conveyance of water and of heat, and one morefor the internal temperature-pressure-density relations of the air.

Thirty large pages are required for the computation of the weather changes in 6 hours at only two points in Europe. It took Mr. Richardson 6 weeks to compute for 6 hours. With practice 32 computers might be able to forecast for two points the weather by 3-hour intervals faster than it could occur. Division of labor might reduce this number. For the world outside the steady tropics, 64,000 computers would be needed for a network of points at distances of 200 kilometers, or about 125 miles, from one another. This would be quite expensive, though the cost mightperhaps not exceed the value of the result to a more densely populated world a century hence.

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B and 21st Sts.,
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