SPECIAL RELATIVITY

...lim... ...that are missed by the Galilean ...ption. The first ...n w... ...istence... ...in nature. The maximum speed ...ma... ...esult... ...time and length intervals, ...tin... ...etw... ...nce of event horizons. ...lo...

...A... ...S... ...AT R... ...OTION OF

...I...

...est celer...

...cise... ...of mo... ...eck whether a ...ight, ...k along... ...words, we use ...ow do... ...ether a... We look across ...we meas... ...high pr... ...h light. How do ...precision?... ...ce it was... ...e Sun that was ...s light from ca...

...words, light is imp... ...is the sta... *...isturbed motion.* Physics would have evolved much more rapidly if, at some earlier time, light propagation had been recognized as the ideal example of motion.

But is light really a phenomenon of motion? This was already known in ancient Greece, from a simple daily phenomenon, the... ... Shadows prove th... light is a moving en-ty, ema...ating from the light source, and mov...g... ...stra...t lin... The obvious con-lusion that light ta...s a certain amoun... of ti...e... ...ay... from t... sou...e to the surface

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* 'Nothing is f...er tha... rum...r.' Th... comm... sent...e is... sim...fied ve...on o...irgil's phrase: *fama, ...tum qua non aliud velocius ullum.* 'Rumour, the evil faster than all.' From the *Aeneid*, book IV, verses 173 and 174.

** Note that looking along the plane from all sides is not sufficient for this: a surface that a light beam touches right along its length in *all* directions does not need to be flat. Can you give an example? One needs other methods to check flatness with light. Can you specify one?

*** Whenever a source produces shadows, the emitted entities are called *rays* or *radiation*. Apart from light, other examples of radiation discovered through shadows were *infrared rays* and *ultraviolet rays*, which em-anate from most light sources together with visible light, and *cathode rays*, which were found to be to the motion of a new particle, the *electron*. Shadows also led to the discovery of *X-rays*, which again turned out ...be a ...sio... of li...t, ...th h...h fr...qu...Ch...el r...ere...dis...d via th...r...ado...they...ut...vellin...or...ed...o... Th...t...es...vit...n...el...x-rays... ...elium...cle...ay...