are entirely invisible, or dark; if we and here is the secret of the recent addilooked at it through a prism we should see tions to our knowledge of the stars. nothing, although we can easily perceive by the hand that it is radiating heat. As those rays which the same vapors of it is more highly heated the radiation from the poker gradually increases, until it becomes of a dull red color, the first sign of incandescense. In addition to the dark rays it had previously emitted, it now sends forth waves of red light, which a prism will show at the red end If we still increase the of the spectrum. heat and continue to look through the prism, we find, added to the red, orange, then yellow, then green, then blue, indigo and violet, and when the poker is white hot all the colors of the spectrum are present."

But the beautiful coloring is but one part of the spectrum, dark lines cross it at different places, which are now known as the FROUNHOFER LINES, from a German, who first mapped them with care. We see these lines best through the spectroscope, an instrument in which a number of prisms are mounted, and the light sage from the stars. passed through them to decompose them into their primitive colors. light comes from the sun we find the continuous spectrum; that the stars are spectrum crossed at right angles by numerous dark lines. match and observe its spectum, we shall spectra are crossed by dark lines; that find it continuous, that there are no dark though they are all formed on the same lines breaking up the band.

something which does not burn with a composed; for instance, Beta Pegasi conwhite light; a metallic salt will answer tains sodium, magnesium, barium. Sirius our purpose. The spectrum is very dif- contains sodium, magnesium, iron and ferent; instead of being continuous as hydrogen; of course the spectra contain before, it now consists of bright lines in many lines which have not yet been different parts of the spectrum. Lithivm identified as belonging to any known gives bright lines in the red end of the element, and a large majority of the stars spectrum; sodium, yellow lines; each have not been yet examined, but we metal gives lines peculiar to itself.

prism that when a sunbeam is decom-lastronomer of fifty years ago. posed by its upper portion; a beam pro- But the universe contains others obceeding from sodium or zinc may be jects of greater interest than the stars; decomposed by the lower one. We shall here and there the naked eye may disfind in each case, that the bright lines of cern milky white patches shining with a the metals coincide with some of the dark very feeble light. lines of the sun.

discovery, on which his hypothesis of the in the heavens as the moon, the size of physical constitution of the sun is based; which, if they are situated as far from

Vapors of metals and gases absorb motals and gases themselves emit.

By experimenting in this manner, the following facts have been established.

First-When solid or liquid bodies are incandescent, they give out continuous spectra.

Second—When solid or liquid bodies reduced to a state of gas, or any gas itself, burns, the spectrum consists of bright lines only, and these bright lines are different for different substances.

Third—When light from a solid or liquid passes through a gas, the gas absorbs those particular rays of light of which its own spectrum consists.

Armed with a very powerful spectroscope, Huggens has analyzed the light which brought us news from afar; seated at this instrument of the celestial telegraph, he has read us an important mes-

He tells us that stars are incandescent When the solid or liquid bodies, because they give a surrounded by vapors of the elements Now, if we light a which are burning beneath, because their general plan, they differ considerably in Another experiment: let us take relation to the elements of which they are already know on this point more than Once more. Let us so arrange our could have been dreamed of by the

Some of these are quite large, those in Andromeda and Here, then, is the germ of Kirchboff's Orion, occupying nearly as much space