Pictures of

How Mr. Thomas Atkins Gets

Joking and Patient in the Mids

in er new duck pond, until the kilts av him began to look like er necktie. 'Nd thin he kissed the langhin' frous all tie. 'Nd thin he kissed the mwe etaoin round, 'nd took thim filings she had offered him, 'nd tied thim at the bottom wid a piece av raw hide, 'nd got the frou to fill both legs wid mealy meal. Thin and we wife our way. God bless 'em'' "Divilish lacky you an' the Scotty were Houlighans," said a deep voice from the grass; "and thankful you should ha' been ye-onchristianed deevils!"

"An' who phwas tellin' you, 'McGuinnis, that we phwas not thankful? Sure Oi tanked the pretty frou that gave me the milk as elegantly as I knew how before I left."

"Phwat did yez say to her, Houghli-

The Phaeton

For Panama

Another Warship to Go South for Protection of British Interests.

Customs Officer Makes Selzures -The Emma and Louise

П

Up Stairs.

If you are suffering from anæmia (poverty of the blood) or from a weak heart the fact will be made painfully apparent every time you have

The following property of the property of the

Weighing the

Washington, D.C., Nov. 1.—Sun spots have not been regarded with much respect by astronomers hitherto, because of the doubt as to whether they really exert any influence over the weather. Undoubtedly, however, they will receive more attention in the immediate future than ever before, on account of the remarkable fulfillment of the prophecy of a well-known astronomer as to the sunmer that is just past. He gave warning nine months ago that the summer of 1900 would be one of unprecedented heat—that August would be even hotter than July, and that September would break the thermometric record. These forecasts having been fulfilled, it remains to be seen whether this scientific authority will be proved correct in his future vaticinations, which are to the effect that next summer will be hotter than the last, and so on progressively until 1904, when the maximum of torridity will be reached.

The astronomer quoted derives his data from the observation of sun spots, which, as well as can be ascertained, are vast vortices of fire on the surface of the solar ore. They are so tremenduous in point of size that one of the smallest of them could swallow a planet like the earth in a twinkling, without showing any unusual signs of disturbance. It is known that these sun spots are hotter than the rest of the surface of the celestial luminary, and something more definite about them is likely to be ascertained before long by the application of the new science of astrophysics, and through the aid of that marvelous instrument called the "bolometer," invented by Prof. S. P. Langley, secretary of the Smithsonian Institution.

"Astrophysics is a new branch of astronomy," says Prof. Langley. "Its object, in the case of the sun, for example, is not to mark the place of that luminary in the sky, but to find out how it affects the earth and the wants of man upon earth; how its heat is distributed, and how it influences not only the seasons and the farmers' crops, but the

ary in the sky, but to find out how it affects the earth and the wants of man upon earth; how its heat is distributed, and how it influences not only the seasons and the farmers' crops, but the whole system of living things on our planet. For it has lately been proved that, in a physical sense, the sun first literally creates all animals and plants, and then modifies them in every conceivable way.

"We have found that the sun accomplishes these marvels without yet knowing in most cases how it does so. We are sure that if we could acquire this knowledge, it would form a scientific basis of meterology, and enable us to predict the years of good or bad harvests. What we need to learn is just what the nature of the influence of the sun upon sublunary affairs is, and the bolometer is being utilized to help us gain this knowledge."

If you will hold a glass prism so as to let a beam of sunshine pass through it you will find that it throws upon a blank

If you will hold a glass prism so as to let a beam of sunshine pass through it you will find that it throws upon a blank wall or screen a beautiful rainbow-like "spectrum," with a band of red at the lower end and a band of violet at the upper. This is the result of breaking up the white light of the sun into its component hues. But it has been ascertained that the spectrum aforesaid represents only a part of the rays contained in the sunbeam that passed through the prism, because the human eye, being an imperfect organ, is unable to distinguish what is below the red and above the visible "rainbow" are regions of the visible "rainbow" are regions of unknown colors such as no man has ever

What these invisible colors may be like

however, to make an instrument with nerves more sensitive and senses more delicate than his own, and such an instrument is the bolometer. By its aid Prof. Langley has explored these mysterious regions of unseen colors, mapping them in detail. Taking the visible spectrum at a length of 3 feet, he has traced the path below its red, and for a distance of 40 feet.

In the region below the red most of the heat rays of the sun are gathered. It fact, three-fourths of the entire heating energy of the solar orb is concentrated in that visible area, which may thus be said to have a controlling influence in the said to have a controlling

that visible area, which may thus be said to have a controlling influence in the growing of the farmers' crops, as well a in the creation and development of a other living things on earth. Up beyon the violet end of the spectrum on the chemical rays, upon which the photo grapher is obliged to depend for the pictures he makes with the great artificial eye called a camera.

It is the dark region of invisible hear rays below the red that has so much to do with the weather. If its mysterial were understood, the daily forecast would no longer be mere guesses, by certainties, at least approximate, eve for a long time ahead. Above the violet, where the chemical rays are gathe ed, is a cold area, the rays conveying no heat that is appreciable. But the part of the spectrum beyond the red many times as long as that beyond the violet, and the discoveries to be made by exploration are probably far mo interesting.

The present United States Astrophy.

violet, and the discoveries to be may be exploration are probably far mo interesting.

The present United States Astrophy cal Observatory is located immediate behind the Smithsonian Institution. It a temporary frame structure, design merely to accommodate for while the complicated mechanic of the bolometer. On the outside of it is a massive instrume called a "siderostat," which consists memportantly of a disk-shaped mirror. The mirror is controlled in such a manner clockwork as to present at all hours face to the sun, reflecting a sunbeam rectly into the mouth of a long tu. The tube contains a lens, which through the beam into the building wherein it main apparatus is housed.

The beam, having entered the building assess through a great prism, which made not of glass, but of rock-salt. It must be explained that glass is opact to the rays of the spectrum below red, whereas those rays pass read through a crystal of rock-salt. Grifficulty was experienced by Prof. La ley in obtaining a block of rock-swhich should be at once large enough and clear enough for this important pose. He prosecuted a search all of Europe, and at last found crystals twould serve his purpose in the fam salt mines of Baden. Recently, howe through the courtesy of the Russian gernment, he has succeeded in obtain a few supberb blocks from the Russ salt deposits, and the finest of these heen cut into prisms by a celebra optical expert.

The work has been done with as m painstaking care as is commonly expeed upon grinding of lenses for the gr

The work has been done with as m painstaking care as is commonly expeed upon grinding of lenses for the great telescopes. It was needful, indinasmuch as the bolometer, presently be described, is a mathematical insment pure and simple, and the slighteror in any part of its mechanism m fies seriously the accuracy of the resobtained. The prism, then, throwhich the supplem passes has an a