improvement in the quality of the paper used, but the general arrangement of the contents remains the same. This number contains the usual titles of recent meteorological papers (we may note that SCIENCE is not published in London, as stated in the *Review*, but in New York), and among the more noteworthy articles the following may be mentioned: Professor F. H. Bigelow: 'A New Barometric System for the United States, Canada and the West Indies' (see SCIENCE, March 14, 1902, 417–421), this being the first of a series of 'Studies on the Statics and Kinematics of the Atmosphere in the United States'; Albert Matthews: 'The Term Indian Summer,' an interesting historical sketch, with copious bibliographical notes; B. C. Webber: 'January Gales from the Great Lakes to the Maritime Provinces' (Mr. Webber being Inspector and Forecast Official of the Meteorological Service of Canada); an account of the work of the Weather Bureau in the West Indies; a short 'History of Meteorological Work in India'; a report on the Third International Congress on Hail Shooting, and a translation of Professor J. R. Plumandon's 'General Report on Hail Shooting,' presented to this Congress. Anyone interested in keeping up with the progress of meteorology will find the *Monthly Weather Review* indispensable. Next to the *Meteorologische Zeitschrift* it is the best general publication on meteorology now issued.

SOME PHYSIOLOGICAL AND OTHER EFFECTS OF SUNSHINE AND SHADE.

SOME very interesting facts regarding certain effects of varying exposures to sunshine are brought out in a recent paper by M. Lugeon, professor at the University of Lausanne, entitled 'Quelques Mots sur le Groupement de la Population du Valais (Etrennes helvetiques pour 1902). A study of the principal valley of the canton, between Martigny and the Rhone Glacier, brings out some evident effects of exposure. Statistics show a population of about 20,000 on the left bank, and 34,000 on the right bank of the river. A part of this difference is doubtless due to the fact that the right bank is less steep, and hence more open to settlement, but the major part is believed by M. Lugeon to result from the difference in the exposure to sunshine. In a certain district in this same valley the slopes on both sides are about equally steep, but the population on the sunny side is about 3,000, while that on the shady side is between 700 and 800. With one or two exceptions, all the villages are on the sunny side. In fact, a certain distinction of classes results from this difference in the conditions of insolation. There is developed an aristocracy of the sun, so to speak. The people who live on the right bank are on the whole more prosperous, and better educated. They of the *Sonnenseite* look with some contempt upon the poor people on the *Schattenseite*. The village of Reckingen contains two real castes, the distinction between which rests ultimately upon the difference in exposure to sunshine.

METEOROLOGICAL ANNUAL OF THE ROYAL BELGIAN OBSERVATORY.

The Annuaire Météorologique of the Royal Observatory of Belgium for 1902 is a useful publication, containing a large amount of tabular matter relating to the meteorology of Belgium for the year; meteorological conversion tables, etc., and two longer articles, one a historical sketch of meteorological work in Belgium, and the other an excellent account of the exploration of the free air, and of the results thus far obtained.

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*THE WEST INDIAN ERUPTIONS AND SOLAR ENERGY.**

IN 1883, in connection with the eruption of Krakatoa, you were good enough to allow me to appeal through your quickly and widely circulated columns for early information to enable me to test an idea connected with the spread of the glorious sunsets round the world which followed the event.

Because the terrible catastrophies in Martinique and St. Vincent occurred at a well de-

* A letter addressed to the editor of the London *Times* by Sir Norman Lockyer.

fined sunspot *minimum* I was led to inquire whether similar coincidences were to be traced in the past. I did not know then, but I know now, that Wolf, exactly half a century ago, had suggested a connection between solar and seismic activity; in his time, however, the record of solar changes was short and imperfect.

In my own inquiry I have used our most recently compiled tables, which are now complete for the last 70 years, and I have only considered seismic disturbances within that period. I find beyond question that the most disastrous volcanic eruptions and earthquakes, generally occur, like the rain pulses in India, round the dates of the sunspot *maximum* and *minimum*. More than this, the 35-year solar period established by Dr. Lockyer, which corresponds approximately with Bruckner's meteorological cycle, can also be obviously traced, so that, indeed, the intensification of the phenomena at the *minimum* of 1867 is now being repeated.

In 1867, Mauna Loa, South America, Formosa, Vesuvius were among the regions involved; in the West Indies it was the turn of St. Thomas. The many announcements of earthquakes in the present year before the catastrophe of St. Pierre will be in the recollection of everybody.

In the *maximum* in 1871-72, to name only West Indian stations, Martinique first and then St. Vincent followed suit; in the next *maximum,* in 1883 came Krakatoa.

At Tokio, in a country where the most perfect seismological observatories exist, we find that at times near both sunspot *maxima* and *minima* the greatest number of disturbances have been recorded.

Very fortunately, the magnificent work of the Indian Meteorological Department enables us to associate the solar changes with pressures in the tropics, and obviously these pressures have to be taken into account and carefully studied.

This, sir, brings me to the point of this letter, which is, through your kindness, to ask from meteorological observers in the West Indies and the surrounding regions the favor of copies of their barometrical readings, showing the departures from the local means for the two months preceding the eruption at St. Pierre. In this way one or two years may be saved in getting at the facts.

SCIENTIFIC NOTES AND NEWS.

At the annual meeting of the American Academy of Arts and Sciences, held on May 14, it was voted to award the 'Rumford Premium' to Professor George Ellery Hale of the Yerkes Observatory, 'for his investigations in solar and stellar physics, and in particular for the invention and perfection of the spectro-heliograph.' It was also voted to appropriate the sum of $750 from the income of the Rumford Fund to be expended for the construction of a mercurial compression pump designed by Professor Theodore W. Richards and to be used in his research on the Thomson-Joule effect. An appropriation from the Rumford Fund was also made to Professor Arthur A. Noyes in aid of his research upon the effect of high temperatures upon the electrical conductivity of aqueous solutions.

Dr. Angelo Heilprin, of Philadelphia, and Mr. George Kennan are among those who are engaged in studying the volcanic eruptions in the Lesser Antilles. They, as well as Dr. R. T. Hill, according to the reports in the daily papers, have made a thorough examination of the conditions in Martinique, having explored that the Government will defray the expenses.

The Paris Academy of Sciences will send a scientific mission to investigate the volcanic eruptions in the Lesser Antilles. The mission will probably sail on June 9. It is understood that the Government will defray the expense.

An expedition to study the volcanic eruptions in the West Indies is also planned by Great Britain under the auspices of the Royal Society. It is expected that Dr. Tempest Anderson and Dr. Flett, of the Geographical Survey, will be members of the party.

A scientific Commission consisting of Dr. G. C. Low, Dr. C. Christy and Dr. Castelani has been sent to Uganda by the Royal Society for the purpose of investigating sleeping sickness.