Sydney Daily Telegraph
Nov. 14, 1902

THE METEOROLOGICAL DISTURBANCES.

FIRE-BALLS IN VICTORIA.

SOME REMARKABLE PHENOMENA.

SCIENCE AT FAULT.

"Now, seriously, Mr. Russell, what about these fire-balls in Victoria?"

The Government Astronomer, however, had no idea of treating the question flippantly.

"Have you ever been to sea?" he retorted.

"Yes."

"Then you've probably heard of what sailors call St. Elmo Fire. It's exactly the same kind of thing they seem to have had in Victoria."

Now, St. Elmo Fire, though it belongs to the traditions of the sea, is witnessed about once in 10 lifetimes. Mr. Russell's father was a sea captain, and he never came across a specimen, but there are remarkable instances on record, well authenticated, very difficult to believe, and infinitely more difficult to explain.

But Mr. Russell feels impelled to believe in these fire-balls from Victoria. A strong wind passing over a parched country would naturally create curious electrical disturbances—"pockets" of electricity which would travel in irresponsible directions, and burst somewhere in the vicinity of a prominent chimney stack or church steeple. They would always seek the nearest point.

There are some remarkable instances on record of these erratic electric balls, but science is at a dead loss to account for them. Francois Arago, the "daddy" of meteorologists in all the ages, says:—"Globular lightnings of which I have cited so many examples, and which are so remarkable, first for the slowness and uncertainty of their movements, and next for the extent of the damage they occasion in exploding, appear to me to be at present one of the most inexplicable problems within the range of physics. These balls or globes of fire seem to be agglomerations of ponderable substances, strongly impregnated with matter of lightning. How are such agglomerations formed? In what region are they produced? Whence have arrived the substances of which they are produced? What is their nature? Why do they sometimes pass over in their course, and are afterwards precipitated with great rapidity, etc.? To all these questions science returns no answer."

But because science cannot explain the phenomena, scientists do not utterly disregard evidence of fact. Arago himself relates many remarkable instances which have been vouched for by reliable witnesses.

In July, 1681, when near Cape Cod, the English ship Albemarle was much damaged by lightning. A stroke of lightning was followed by the descent of a bituminous substance that burnt like gunpowder, and fell into the stern boat. It burnt itself out where it fell, after vain attempts had been made to extinguish it with water, and throw it overboard with poles.

Again, near Horn (France), on March 17, 1726, during a violent thunderstorm, a fire-ball was seen to fall, and after touching the earth it rebounded, striking the dome of the church tower, and setting it on fire. Near Brest a church was nearly destroyed in a similar manner. Different witnesses agreed that three fire-balls united, and then burst over the building.

There is another well-authenticated case from Northamptonshire, where a shepherd and five sheep were killed by lightning. During the greatest violence of the storm the Rev. Joseph Wasse saw a fire-ball "almost as large as the moon," and heard the hissing sound of its passage through the air and over his garden. During the same storm a tradesman in the town saw a fire-ball, as large as a man's head, burst into four pieces near the church.

Nearer home, there is the case of a tank-tender in the interior of New South Wales, who saw an electric ball travelling just above the level of the ground towards him, and then suddenly plunge into the tank.

In the forties, when the meteorological observations were made at South Head, it is recorded that a fire-ball passed through the house and out again without doing any damage.

But the most extraordinary story of all comes from France again. Some cobblers were sitting round the fire during a heavy thunderstorm, when a fire-ball came down the chimney, travelled round among the chairs of the cobblers, and finally passed up the chimney again without exploding.

All this, of course, is hardly believable, and quite contrary to the teachings of science, but it is duly chronicled in scientific works.

ATMOSPHERE CLEARING IN MELBOURNE.

EXPLANATION OF THE PHENOMENA.

WEIRD COLORING OF THE STORM.

DUST FROM THE DRIED INLAND DESERT.

MELBOURNE, Thursday.—A delightfully cool change occurred this morning after the furious

heat and dust of yesterday, and several light showers of rain fell. However, the streets of the city dried rapidly. The sky became overcast, and the wind gradually grew stronger, till at noon it was blowing at the rate of 56 miles an hour. Dust again swept in blinding clouds, and matters were very uncomfortable for a couple of hours. At 1.30 rain again fell, and the weather is now clearing.

Mr. Baracchi states that the cause of the unusual phenomena yesterday was mainly a shallow depression which came up rapidly from the north-east. Enormous quantities of dust were taken up by cyclonic winds accompanying the depression. This was due to the fact that in its passage the depression blew over vast tracts of land which have lain rainless and drought-stricken for many months, and in some cases years. The friable earths and sands, dried and powdered into almost impalpable particles by the fierce suns and hot winds of the Central Australian Desert, had been caught up by the strong gales, and carried to an immense height by their rotary or cyclonic motion, and then precipitated and borne along by fierce squalls and heavy gusts nearer the earth.

"The balls of fire," added Mr. Baracchi, "are entirely due to electrical disturbances, the atmosphere being very dry and favorable to such developments. The weird coloring of the storm, the red glow, flame-like appearance, and yellow tinge seen at different places are simple and not uncommon phenomena. The rays of the sun shining through various earths entirely caused these strange appearances. Now that a change has come, we shall have a day or two of cool, dull weather, and probably showers of a light character."

Melbourne Leader

Nov. 22, 1902

FIREBALLS IN AUSTRALIA.

PROFESSOR GREGORY'S OPINION.

Professor Gregory, of Melbourne University, was asked for his views on the cablegram indicating that Sir Norman Lockyer, of South Kensington, believed that the fireballs seen in Australia last week were of volcanic origin. "Sir Norman Lockyer," replied the professor, "is one of the most eminent of living authorities on atmospheric electricity, and his opinion, therefore, is of the greatest weight. I do not for one moment think, however, that he intended to convey the opinion that the fireballs seen in Australia were of volcanic origin. What he no doubt meant to say was that the fireballs seen at Mont Pelee and at La Souffriere were of the same nature as those seen in Australia, though produced by different causes. The fireballs produced by volcanic action were the result of dust being driven through the air with such force as to cause friction between the particles, the friction producing electricity, and the electricity expressing itself in globular form. The fireballs which were observed during the great dust storm of last week were produced by the same mechanical action, with the exception that it was not volcanic, but cyclonic, energy that set the dust in motion. There was no doubt a good deal of organic matter in the dust which found its way into Melbourne, and that of course would readily take fire."

FIREBALL IN NEW SOUTH WALES.

SYDNEY, Wednesday.

During the storm yesterday at Murrumburrah a large fireball was observed making its way in the air across the town.

Melbourne
Leader
Nov 15 1902

THE WEATHER.

TERRIFIC DUSTSTORMS.

FIREBALLS AND FLAMES.

PANIC IN THE COUNTRY.

From the accounts to hand it would seem that Wednesday, in its way, was perhaps one of the very worst days experienced in the State since first any record or scientific notice has been taken of our weather. From all parts of the State the same tale is coming in; a tale of a "Black Wednesday," full of gales, fires, storms, darkness and disaster. There was not, as far as the metropolitan district is concerned, any particular warning of what was to come. The early morning was much like a hundred others in our November; a trifle close, a trifle dusty and with promise of heat to come. The sun shone out of a sickly sky until about noon; then suddenly it disappeared behind a curious yellow-red pall, which seemed to sweep down over the city from the north and north-east, accompanied by a fierce, biting, stinging hot wind and almost incredible clouds of dust. The roofs and turrets of the city went out in a dirty, dun cloud; the streets became mere channels down which the hot gale poured huge volumes of dust; doors and windows were choked with dirt and grit; and paper, refuse and rubbish gyrated in the air like birds and butterflies. The people were caught at corners by miniature willy-willies; the people on the trams and all who could not instantly escape into a convenient doorway were fain to turn and run, covering their faces with hats, coats, handkerchiefs, or anything they held. Traffic was impeded, and like an impenetrable fog the dust clouds settled down steadily over all the city.

All the afternoon the hot wind blew steadily from the north; it grew hotter as the hours went on; the dust became thicker and the air closer, and at 4 o'clock the many lights in office windows and shops bore eloquent testimony to the length and strength of the storm. At one time, about 5 p.m., the city became darker than ever during the day. An hour later the first signs of a change became evident, but, unfortunately, it was a change for the immediate worse. The wind veered to the west, and presently the temperature fell a few points; but the gale blew stronger than ever, and it seemed—nay, it was so—as if all the dust blown toward the sea during the day was being blown back again. The shift in the wind set thousands of doors aslam, windows rattled, boards and bills flew, fencing was blown over, and the rush and confusion of the day suddenly doubled. With the north wind the highest velocity reached was 45 or 46 miles an hour; with the westerly there came several gusts that verged on 52 or 53 miles an hour. And these lasted intermittently for nearly two hours. A very few drops of fine rain fell here and there, and gradually the sky cleared, the wind and the dust fell, the stars came out, and at midnight the weather was cool, calm and normal.

But, bad as things were in the metropolis, they were infinitely worse in the country. At Boort, in addition to a dust storm of unheard of fierceness, great balls of fire fell in the paddocks and on the streets, throwing up showers of sparks as they struck the earth. At Wycheproof "the whole air seemed on fire," and people were terrified, thinking that the "end of the world" was at hand. It grew very dark, and lanterns had to be used, and the wind blew so fiercely that timbers, hoardings and boughs of trees were "wafted through the air like feathers." At Allendale a house was set on fire and destroyed by the fire balls. At Sea Lake, the Presbyterian Church was so badly injured by the wind that it will have to be pulled down. From Chiltern comes a sensational message, saying that huge fire balls burst on the poppet heads of the New Barambogie mine, and set fire to them, while others set fire to the timber of the shaft, and had to be extinguished at great risk. Bush fires are reported in every direction—no doubt caused by the fire balls. At Deniliquin, "red flames" were seen in the air, and the fire balls destroyed a stable. At Numurkah, a house was apparently destroyed through the same agency to "a loud roaring noise"; and, indeed, if our weather does not "reform and economise," it will be safer to go to the wars than live in the country. At Portarlington, the farmers suffered badly, the wind levelling the crops and blowing away stooks of hay. At Glenloth, it got so dark at 3.30 p.m. that "the fowls went to roost." The local feeling, according to our correspondent, is that the storm came from Sydney, but probably this is an exaggeration based on nothing better than the known fact that a great depression—which seems to have been mistaken for a meteorological effect—has been ruling there of late. Some high temperatures were noted in the country—100 degrees at Albury, 99 degrees at Numurkah and 100 degrees at Tocumwal. At Tungamah, it was "a veritable scorcher," and the atmosphere was a dull, red color.

MR. BARACCHI ON THE PHENOMENA.

Mr. Baracchi, in the course of an interview in the evening, said the cause of the unusual phenomena was mainly a shallow depression, which came up rapidly from the north-east. The enormous quantities of dust taken up by the cyclonic winds accompanying the depression were due to the fact that in its passage the depression blew over vast tracts of land which have lain rainless and drought-stricken for many months—in some cases years. The friable earths and sands, dried and powdered into almost impalpable particles by the fierce suns and hot winds of the Central Australian desert, had been caught up by the strong gales and carried to an immense height by their rotary or cyclonic motion, and then precipitated and borne along by the fierce squalls and heavy gusts nearer the earth. "The balls of fire," added Mr.

Baracchi, "are entirely due to electrical disturbances, the atmosphere being very dry and favorable to such developments. The weird coloring of the storm; the red glow, the flame-like appearance and the yellow tinge seen at different places are simple and not uncommon phenomena. The rays of the sun shining through the various earths entirely caused these strange appearances. Above the storm the sun, of course, was shining very brilliantly; had you been able to see it the storm from above would have resembled a vast brownish-red sea brightly lit up, or a rolling cloud of enormous proportions. The different colored soils, too, would give different tinges to the dust storms. The sudden darkening to almost night was due probably to the great clouds of dust passing over or into one another, and so thickening, as the wind shifted suddenly from northerly to the westerly. Being cyclonic, a period of comparative calm would exist in the upper atmosphere for quite a considerable period when the wind changed its direction, and of course then the dust would hang over a place like a pall. I have no doubt that when the telegraph wires get working again we shall hear that there have been thunderstorms in many places, as I anticipated. They are always found in rear of a depression like this. Now that the change has come, we shall have a day or two of cool, dull weather, and probably showers of a light character. It is now very rough in Bass Strait, and rough sea will prevail all along the coast for the next few days."

The report of our Boort correspondent that during the storm on Wednesday balls of fire fell in the street, and sparks were distinctly seen where the balls came in contact with the earth, was brought under the notice of Mr. Baracchi on Thursday. He explained that "fireballs" are in reality forms of electrical discharge known scientifically as "globular lightning," a rare phenomenon which has not yet been explained. Globular lightning, he said, usually manifests itself as a luminous sphere, astronomical test books stating that the globes are of diameter varying from a few inches to even two or three feet. It moves very slowly, and remains visible for several seconds, or sometimes minutes, generally at last exploding with great violence. In the first two particulars it contrasts very strongly with ordinary lightning. Arago, in his Meteorological Essays, mentions an instance which occurred at Milan in 1841, when one of these globes moved along a street so slowly that spectators walked after it to watch it. The narrator saw it from a window, and then ran downstairs and saw it for three minutes before it struck a cross on a church steeple and disappeared. Again, it is recorded that a Madame Espert, of Paris, saw a ball or globe of fire descend from the sky. It was very like a moon "when it appears augmented in size." While she was watching it "with a terrible explosion it burst asunder, and there darted from it ten or twelve zig-zag lightnings, which shot forth in all directions. One of these struck a neighboring house, where it made a hole in the wall as a cannon ball might have done." The event lasted about a minute.

Globular lightning has been seen and recorded on several other occasions, so that its occurrence is well established, although some physicists deny the possibility of its existence.

Mr. Baracchi added that the condition of the atmosphere all over the State on Wednesday was highly favorable for the occurrence of electrical phenomena such as that described.

SYDNEY, Thursday.

With reference to the fireballs seen in Victoria, the Government Astronomer, Mr. Russell, explains that it was exactly the same kind of thing that sailors called St. Elmo fire. A strong wind passing over parched country would naturally create curious electrical disturbances—pockets of electricity—which would travel in irresponsible directions, and burst somewhere in the vicinity of a prominent chimney stack or church steeple. They would always seek the nearest point. "There are some remarkable instances on record," added Mr. Russell, "of these erratic electric balls, but science is at a dead loss to account for them."

Dec 30 1902

THE REGISTER, ADELAIDE, TUESDAY,

Adelaide SA
Register
Dec 2 1902

A DAZZLING FIRE BALL.

A well-known, observant city gentleman called on the sub-editor shortly after 9 o'clock on Monday night, and gave the following vivid description of a fire ball he had seen a few minutes previously. "I was driving from Henley Beach, when I saw in the north-eastern heavens what I took to be a particularly bright star. 'Hullo, what star is that?' I remarked to my companion. 'I must put the glass on it when I get home.' But to my amazement it suddenly began to move towards the west. As it travelled it became bigger and brighter until it was the size of a full moon and as bright as a burning coal. Suddenly its brilliance was dimmed, and it appeared as a luminous mass, with a haze around it. This alteration was repeated several times as the fire ball slowly moved to the north-western heavens. There it disappeared. Altogether it must have been visible nearly five minutes, and was a grand appalling sight." Naturally Sir Charles Todd was asked for notes on the interesting phenomenon. His note was brief and to the point:—"Blondin's fire balloon." Further enquiry showed that Blondin did send up a fire balloon from the Adelaide Oval at the time the "fire ball" was seen from the Henley Beach road. No doubt the gentleman who was appalled by what he thought he saw will be the first to smile at his mistake, pardonable at this period of the year, when everybody is on the look out for brilliant meteors and dazzling big fire balls. His error calls to mind the old story of the innocent traveller making his first voyage, who on a still night seeing the full moon cast its effulgence over a calm sea, called the attention of one of the vessel's officers to "the ship on fire over there."

—Red Duststorms and Fireballs.—

A cable message from Australia, reporting the account of red duststorms in Melbourne and Sydney, and the falling of fireballs which ignited several buildings, has excited widespread notice here, and the scientists have been hard at work suggesting explanations of the extraordinary experiences. Sir Norman Lockyer declares that the fireballs are an electrical phenomenon, generally described as globular lightning. During the eruptions of Mont Pelee, in Martinique, and Soufriere, in St. Vincent, similar fireballs were constantly seen. They are not of rare occurrence, and at the observatory erected on the summit of Pike's Peak, in the United States, fireballs are continually falling. For some time the building was protected by copper netting, but ultimately had to be abandoned owing to the frequency of these globes of fire. Scientific records, it is added, show that the falling of these fireballs has often resulted in damage to life and property. The Warren Hastings, a ship of the line just commissioned at Portsmouth, was struck on the masts with three electric balls following each other in quick succession in 1890. The steamer Pathan had her masts and yards covered with globes of fire in the Mediterranean in 1891. A party of surveyors were on the summit of the Bobul Mountain in the Caucasus in 1890 when a huge violet ball surrounded by rays apparently two yards long struck the top of the peak. Others followed, and the summit was covered with electric lights. One member of the party was injured. There are several instances of electric balls bursting indoors. In 1711 one exploded among some people in the porch of a Devonshire church, and four burst in the chancel, filling it with smoke and flame. In 1809, says Mr. J. Munro, in "The Romance of Electricity," one entered a drawing room at Newcastle-on-Tyne and exploded into fragments. In 1881 an electric ball entered a wooden dwelling at Mont Dore, in Auvergne, and exploded, setting the house on fire, with the result that a child was burnt to death and another inmate dangerously injured.

Bathurst NSW
Free Press &
Mining Journal
Dec 3 1902

SPECIAL NOTE.

This forecast is issued somewhat later than usual, for the simple reason that the air for weeks past has been so impregnated with volcanic matter drifted by the North-westerly winds, both in the high and low currents, that it is impossible for a Meteorologist to issue reliable information concerning weather conditions so far in advance. From careful observations I find that the gasses have been shifted here and there since the 20th November, and by the 6th December will, I think, have entirely dispersed, from which date I am issuing the forecast for the remainder of the month. It will, perhaps, be interesting to my subscribers to learn that much extraordinary phenomena will be seen in our sky and other parts of the world for months or years to come. I may state that the fire balls lately observed were composed principally of sulphur, incense, and nitrous gasses, etc., massed together, and driven before the different currents. The dark days experienced was caused by fine volcanic dust descending in a large sheet, and interposed between the earth and the sun. These and such like phenomena will be experienced, as before mentioned, every now and again for months of years to come.

The Summer Season.—I herewith give the general constitution of the coming summer, and may say that on the whole the atmosphere will be temperate, but some days of burning heat will be experienced. The indications for rain are very promising, so that the season will be by no means a dry one. Full detailed information will be given in my weather forecast for each succeeding month.

Brisbane
Courier Qld
Dec 29 1902

Under the heading, "End of the World Panic," the London "Daily Mail" contains the following startling piece of news from a Sydney correspondent, dated 13th November:—"An extraordinary red dust storm broke over Melbourne yesterday. One remarkable phenomenon was the falling of fireballs, which ignited several buildings. At midday the city was in darkness, and people traversed the streets with lanterns. Some thought the end of the world had come, and there was a slight panic."

Hobart Tas
Mercury
Dec 1 1902

ALBURY, November 23.

At an early hour yesterday morning members of the police force on duty observed a fire ball in the western sky. The phenomenon was of startling brilliancy, illuminating the sky with almost daylight clearness. It proceeded slowly, and then appeared to part in two, one portion falling towards the earth and the other becoming lost in space. The light emitted was of a pale greenish colour, and of blinding brilliancy.