ward through a window about 10 feet from the eye, up a long-
wide, flat valley, running northerly and southerly between
the two ranges of the Balsam Mountains. The air current,
at a height of about 4,000 feet, was from a westerly direc-
tion, and a continuous procession of small cumuli was
floating across the field of view, projected upon the window
panes, which afforded an excellent opportunity for observing
both the progressive and the proper motion of the clouds.

It was first noticed that one of the cumuli was first chang-
ing in shape, and that its summit was continually falling
and being replaced by another summit rising from behind.
As that cloud drifted out of the field of view and others came
in sight, they were all seen to be changing in the same man-
ner. Then it was noticed that the entire fronts of the clouds
were falling and their rear portions rising; next that the
horizontal, easterly motion of the tops of the clouds across
the window panes was much more rapid than the vertical
motions of the fronts and rears, and finally that the lower
edges were nearly stationary.

Then it was perceived that all these apparent motions were
the resultant of the progressive motion of the clouds, and a
motion of gyration round an axis. There was not sufficient
vertical motion of any cloud, as a whole, to be noticeable,
and it was obvious that the axis was within the cloud, and
that each cloud substantially filled a cross section of a hori-
zontal air roll which was "end on" to the observer. The
gyratory velocity was moderate, and on the first day it was
several minutes before all the motions mentioned had been
noticed and correlated in the mind. The period of obser-
vation lasted about half an hour, and as the progressive motion
was tolerably brisk (from 15 to 20 miles an hour probably)
and as several clouds were constantly within the field of view,
hundreds of them must have been seen. No cloud was ob-
served that did not have the gyration motion.

On going out of doors to ascertain how far the field of rolls
extended, it was seen that the clouds in the whirls were all to
leeward of a large, standing, nocturnal cloud, hanging over
"Platt's Balsam," the summit of which is 6,500 feet above sea
level, and 8,800 feet above the floor of the valley, and that they
all evaporated before reaching the high range of mountains on
the other side of the valley. The clouds observed through the
window were at least two miles from the standing cloud.

The coinidence in size of the clouds and the cross sec-
tions of the rolls seemed at first thought to indicate that the
whirls were effective in condensing the clouds, but the better
opinion seemed to be that these rolls, while drifting over the
Balsam Mountains, tore off from the standing cloud as much
as they could contain in cross section, and carried it along
rolling over and over as described.

Possibly the air rolls themselves were formed at the ridge of
the "Balsams," where the standing cloud was formed. A
half hour's observation on the second occasion under identi-
cal circumstances, as far as could be perceived, verified the
observations above described. The weather was fair and no
other clouds were visible. Similar standing clouds at the
same place, with fragments blown away to leeward, were
frequently seen afterward, but no revolving clouds were seen
at any other time.

The similarity in size, shape, and motion of the clouds
indicated a succession of parallel, horizontal air rolls of
tolerably uniform dimensions following one another closely.
The clouds were all considerably south of the zenith, and
nothing could be seen of the longitudinal dimensions of the
rolls.

LONG RANGE SEASONAL PREDICTIONS FOR OREGON.

By B. S. Pague, Local Forecast Official.

In the Review for March, page 166, we called attention to the
general prediction of summer weather made by Mr. B. S.
Pague, Local Forecast Official at Portland, Oreg. We now
print from the Weather Map for 8 a.m. eastern time, or
5 p.m. Pacific time, October 29, 1896, published at the
following Bureau station at Portland, Oreg., the following
synopsis and general forecast, indicating the approach of the
winter season:

WEATHER SYNOPSIS AND GENERAL FORECASTS.

The first winter storm of the season has made its appearance, and
from now a stormy weather type appears in the spring of 1897, it
is more probable that rain will fall than that fair weather will prevail.
In 1896 the first winter type of storms appeared on November 12
and continued to prevail until June 13, 1896, when the summer type
appeared. The winter storm is distinguished from the summer by the
movement of the high and low areas in the winter type; the low area
was falling from the north southward along the coast line to Vancouver
Island, or lower, thence eastward; while the low is moving in this way the
higher areas move northward from the ocean on the southwest of California
toward Cape Mendocino, thence eastward to about Great Salt Lake,
where they remain stationary and gradually dissipate. In the winter
the low areas move eastward along the latitude of Sitka and the
areas of high pressure move northward about the latitude of Van-
couver Island, thence eastward; when they reach the summit of the
Rocky Mountains, northeast of Spokane, then very warm weather pre-
vails; when the highs are moving along the coast cooler weather pre-
vails; when the highs are moving away from the coast, then very warm
weather prevails when the highs are central about Great Salt Lake. The areas
of low pressure form each other in quick succession, and the more
rapid their appearance the more frequent the rain. Continuous rain
is not the idea, but rather the summer or dry season is past, and the
winter or rainy season is present.

NOTES CONCERNING THE WEST INDIA HURRICANE OF
SEPTEMBER 29-30, 1896.

By A. J. Henry, Chief of Division of Records and Meteorological Data (dated
November 1896).

[CONTINUED FROM THE SEPTEMBER REVIEW.]

As stated in the September Review (page 317 of this vol-
ume), the violence of the storm of the above date was not uni-
form throughout its entire course. There seems to have been
two distinct periods of unusual violence separated by a
period during the afternoon of the 29th when the winds ex-
hibited but little destructive power.

Evidence of unusually violent winds were observed on
every hand throughout the storm's course in the States of
Florida and Georgia. In the counties of Levy, Alachua,
Lafayette, Suwannee, Columbia, Bradford, and Baker, Fla.,
the destruction of pine timber was enormous, the mone-
tary loss from that source alone being estimated at $1,500,000.
During the early part of the storm the trees were torn up by
the roots, but as the force of the wind increased they were
broken and twisted off and thrown forward in a confused
mass.

At Jacksonville, a little south and east of the storm's path,
the self-registers show the maximum wind velocity, 70 miles
per hour, to have occurred coincidently with the minimum of
pressure. Violent winds continued for an hour and a half
after the occurrence of the barometric minimum. The aver-
ge velocity during the continuance of the storm, or from
9.10 a.m. to 12 noon, was 52 miles per hour, rising during a
portion of the time to 63 miles, which velocity was main-
tained continuously for an hour.

The self-registers at Savannah indicate quite clearly that
that city was in very near the center of the storm's path.
The barograph curve is exceedingly interesting. It is of the
V-type characteristic of thunderstorms and tornadoes. The
fall was quite slow at first but increased rapidly as the cen-
ter of the disturbance approached. The fall from noon to
12.45 p.m. was .45 inch, almost all of which had been re-
covered by 2 p.m. Unfortunately the electrical recording
apparatus failed to register was 75 miles per hour, a velocity

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