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THE TYPHOON OF 18 SEPTEMBER 1906

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THE TYPHOON OF 18 SEPTEMBER 1906

A small but exceptionally violent typhoon struck Hong Kong on 18 September 1906 but even today there is still uncertainty as to when and where it evolved.

According to Manila's records, a tropical depression was first located near Guam on the afternoon of 8 September, travelling in a west-northwest direction towards the Bashi Channel. On 15 September, it was centred to the south of Taiwan, moving northwest at about 8 knots and beginning to intensify. But this typhoon could never be positively identified as the same storm which struck Hong Kong on 18 September as another separate typhoon affected Hong Kong only two days later on 20 September. According to the records of the Hong Kong Observatory, there was a suggestion that the storm experienced in Hong Kong on 18 September might have been a local storm which had boiled up suddenly in the South China Sea. Based on this argument and because the storm was very small in area and fast moving, Captain Roach of the S.S. Haitan suggested that the storm was more like a tornado than a typhoon. Tornadoes frequently accompany hurricanes in the United States but have never been reported in Hong Kong. There was another possibility that the typhoon which developed near Guam had struck land, broken up and formed two of smaller size.

However, none of these suggestions was totally accepted as an explanation for the origin of the typhoon for there was never enough evidence to support any one of the arguments or to exclude the others. Even if the typhoon was the one which had developed in the Pacific there was insufficient information about its movement for the Observatory to give earlier warning than was actually furnished by the hoisting of the Black Drum at about 8 a.m. on 18 September. If it had developed in the South China Sea then it must have moved at a speed that made it unpredictable. The latter suggestion was apparently not accepted by later studies by the Royal Observatory. In a chart prepared in 1950 by Mr. G.S.P. Heywood, then Director of the Observatory, the 1906 typhoon was shown passing west-northwest through the Bashi Channel veering northwest towards Swatow and then swinging back to west-northwest before hitting Hong Kong.

Barometric readings on 17 September 1906 were 1008.6 mbar at 11 a.m., 1005.3 mbar at 3 p.m. and 1007.4 mbar at midnight. After midnight a decline of pressure preceded the storm. On 18 September the barometric reading fell from 1006.5 mbar at 2 a.m. to 1000.7 mbar at 8 a.m. The Black Drum was hoisted at 8 a.m., followed by the firing of typhoon gun at 8.40 a.m. At 9 a.m. the storm was at its height while pressure continued to fall and reached a minimum of 986.2 mbar at 10 a.m.* This was the minimum hourly reading in the year. The centre of the typhoon passed over Hong Kong between 8.30 a.m. and 11 a.m. and the barometric reading rose abruptly to 1004.0 mbar within the following hour. By the evening of 18 September, the typhoon, while keeping its westerly course, has passed over Macao and dissipated overland.

* It has been estimated that the instantaneous pressure fell to 979.4 mbar at 9.40 a.m.

TABLE 1. BAROMETRIC READINGS AT THE ROYAL OBSERVATORY FOR THE TYPHOON OF 18 SEPTEMBER 1906

DATE	TIME	PRESSURE (mbar) (HOURLY MEAN)	REMARKS
17	6 a.m.	1007.0	)
	noon	1007.7	) READINGS FLUCTUATED SHOWING RISE & FALL
	6 p.m.	1006.1	)
	midnight	1007.4	— READING BEGAN TO DECLINE
18	2 a.m.	1006.5	
	4 a.m.	1005.5	
	6 a.m.	1004.4	
	8 a.m.	1000.7	— BLACK DRUM HOISTED, TYPHOON GUN FIRED
	10 a.m.	986.2	— LOWEST READING (BOTH IN THE COURSE OF THE TYPHOON AND IN THE WHOLE YEAR)
	noon	1004.0	— RAPID RISE (RETURN TO NORMAL)
	2 p.m.	1006.4	
	6 p.m.	1007.4	

Light to moderate westerlies prevailed on the morning of 17 September. After noon, local wind direction became variable until midnight as shown in Table 2 and wind speed was light to moderate. At dawn on 18 September, wind was moderate to fresh northwesterly. By the time the typhoon gun was fired, the wind speed had reached 37 knots at the Royal Observatory while at Gap Rock it was force 6. At that time winds were still from the northwest. The wind abruptly swung to south-southwesterly at about 10 a.m. when a maximum hourly of 67 knots* was recorded. This was the strongest wind on record up to 1923. The duration of gales was about 2 hours and during these two hours some four or five squalls of great severity were experienced. Winds began to moderate after noon and were mainly from the south.

* In the 1906 Meteorological Results, a factor of 3 was used for the cup anemometer. Later experiments suggest that a factor of 2.2 would be more appropriate and this would reduce the maximum hourly wind to about 49 knots.

TABLE 2. WIND SPEEDS AND DIRECTIONS AT THE ROYAL OBSERVATORY FOR THE TYPHOON OF 18 SEPTEMBER 1906

DATE	TIME	WIND (HOURLY MEAN)* (in knots)	DIRECTION (in degrees)	REMARKS
17	1 a.m.	3	280	)
	6 a.m.	6	280	) LIGHT WESTERLY PREVAILED
	1 p.m.	5	280	)
	2 p.m.	3	080	
	4 p.m.	9	110	)
	6 p.m.	1	360	) VARIABLE LIGHT TO MODERATE WIND
	8 p.m.	5	300	)
	10 p.m.	4	080	)
	midnight	6	310	
18	1 a.m.	7	300	— WIND FROM NORTHWEST
	6 a.m.	12	310	— WIND SPEED FRESHENING
	8 a.m.	37	310	— GALE-FORCE WIND
	10 p.m.	67	210	— HIGHEST HOURLY MEAN RECORDED TILL 1923 (WIND DIRECTION SWUNG TO SSW)
	noon	27	210	— WIND BEGAN TO MODERATE
	2 p.m.	18	170	— SOUTH TO SOUTH-SOUTHEASTERLY WIND
	4 p.m.	13	160	

18 September dawned with an overcast which developed into drizzle. A heavy downpour was reported with associated thunder and lightning in the morning. The total rainfall recorded that day was 114 mm. about half of which was collected in the 2 hours 10 a.m. to noon.

* See footnote on page 2.

TABLE 3. RAINFALL RECORDED AT THE ROYAL OBSERVATORY ON 18 SEPTEMBER 1906 (mm)

1a.m.	2a.m.	3a.m.	4a.m.	5a.m.	6a.m.	7a.m.	8a.m.	9a.m.	10a.m.	11a.m.	noon
-	-	-	-	-	-	7.3	3.3	20.3	31.3	22.5	10.0

1p.m.	2p.m.	3p.m.	4p.m.	5p.m.	6p.m.	7p.m.	8p.m.	9p.m.	10p.m.	11p.m.	MIDT.
3.7	1.3	-	-	-	-	-	10.3	4.3	-	-	-

TOTAL	DURATION (HOURS)
114	7

The rest of the day after 2 p.m. was practically rainless but with an overcast sky except that there was one heavy downpour between 8 p.m. and 9 p.m.

Serious sea flooding was reported during the passage of the storm as high tide was complimented by wind driven waves. At its height, water ran two or three feet deep along parts of the waterfront and with tremendous momentum. The maximum storm surge recorded was 6.1 meters in Tai Po, which is still the highest storm surge on record. The height of maximum sea-level and maximum storm surges recorded at North Point and Tai Po were as follows :

LOCATION	MAXIMUM SEA LEVEL (m)	MAXIMUM STORM SURGE (m)
TAI PO	-	6.10
NORTH POINT	3.35	1.83

The exceptional height of the storm surge was responsible for a great deal of damage along the sea front quite out of proportion both to the duration and severity of the typhoon. Over the sea, quite a number of junks and sampans were caught unprepared and even large ocean-going vessels were in difficulties. To give a few examples : the 6163 ton Monteagle was driven aground, 2 French torpedo boats broke adrift: the Fronde was picked up by a huge wave and smashed against the depot wall while the Francisque was more fortunate and was beached, the American Sailing Vessel S.P. Hitchcock was driven hard against the Kowloon Seawall and then left with her stern high in the air, and the river steamer Kwangchow sank with 300 or 400 passengers on board. In all, 41 merchant ships and 5 naval ships were sunk, damaged or grounded and an uncountable number of junks and sampans were wrecked or smashed to pieces against seawalls or piers. It was calculated that 50% of the Chinese craft in the waters of Hong Kong met with disaster. After the storm, the whole waterfront was strewn with the wreckage of sampans and lighters and the cargoes they had contained. Few ships in the harbour escaped without damage of some description.

On land, the damage done was also widespread. There was a large number of road and building collapses which needed clearance and repair. The city was littered with huge piles of wreckage, broken windows and all kinds of rubbish. While here and there, uprooted trees could be seen lying across roads. As wind pressure tends to collapse walls and tear off low-pitched roofs, many buildings,

especially those with matshed roofs were entirely demolished and squatter huts ravaged. Even great godowns and houses were stripped of their roofs or their front walls were blown down. Especially was this the case at West Point where godowns belonging to Messrs. Jebsen & Co. and Messrs. Jardine Matheson & Co. were completely wrecked. Three of the four wharves disappeared: Blake Pier, Queen's Statue Pier and the Star Ferry Wharf collapsed one after another - the super-structure being washed away leaving the stumps of piles supporting the wharves. The storm also caused expensive damage to roads, portworks, waterworks and buildings. The new post office was totally devastated and its debris completely blocked the approach to Pedder Street, while the Law Court Building shared a similar fate. Government losses alone were quite substantial, while losses in the private sector were never assessed. Thus it was difficult to compute the damage but from twenty to thirty million dollars was admitted to be a moderate estimate.

The loss of human lives was very severe. The death toll mounted to about 10,000* which was a shockingly high figure for a small community of less than 450,000 people. Most of the dead were drowned in the fury of huge waves. And as usual, it was the boat people who suffered most: almost 9,000 out of the 10,000 who died were boat people.

This storm was one of two violent typhoons which made people realize that Hong Kong was neither well prepared nor adequately forewarned about approaching cyclones and that drastic remedies were needed. In the first one - that of 10 November, 1900 - the community was largely to blame for not heeding the adequate warning given by the Observatory as most people would not believe that a typhoon would strike so late in the year. In the other case - that of 18 September, 1906 - warning was given only 16 minutes before disaster befell and public outcry burst immediately against the late and insufficient warning. The storm of criticism finally prompted the governor to set up an official court of enquiry. It pushed Hong Kong towards a new era of co-operation with its neighbouring observatories particularly those in Manila and Shanghai and new measures were introduced so that a better storm-warning system could be established.

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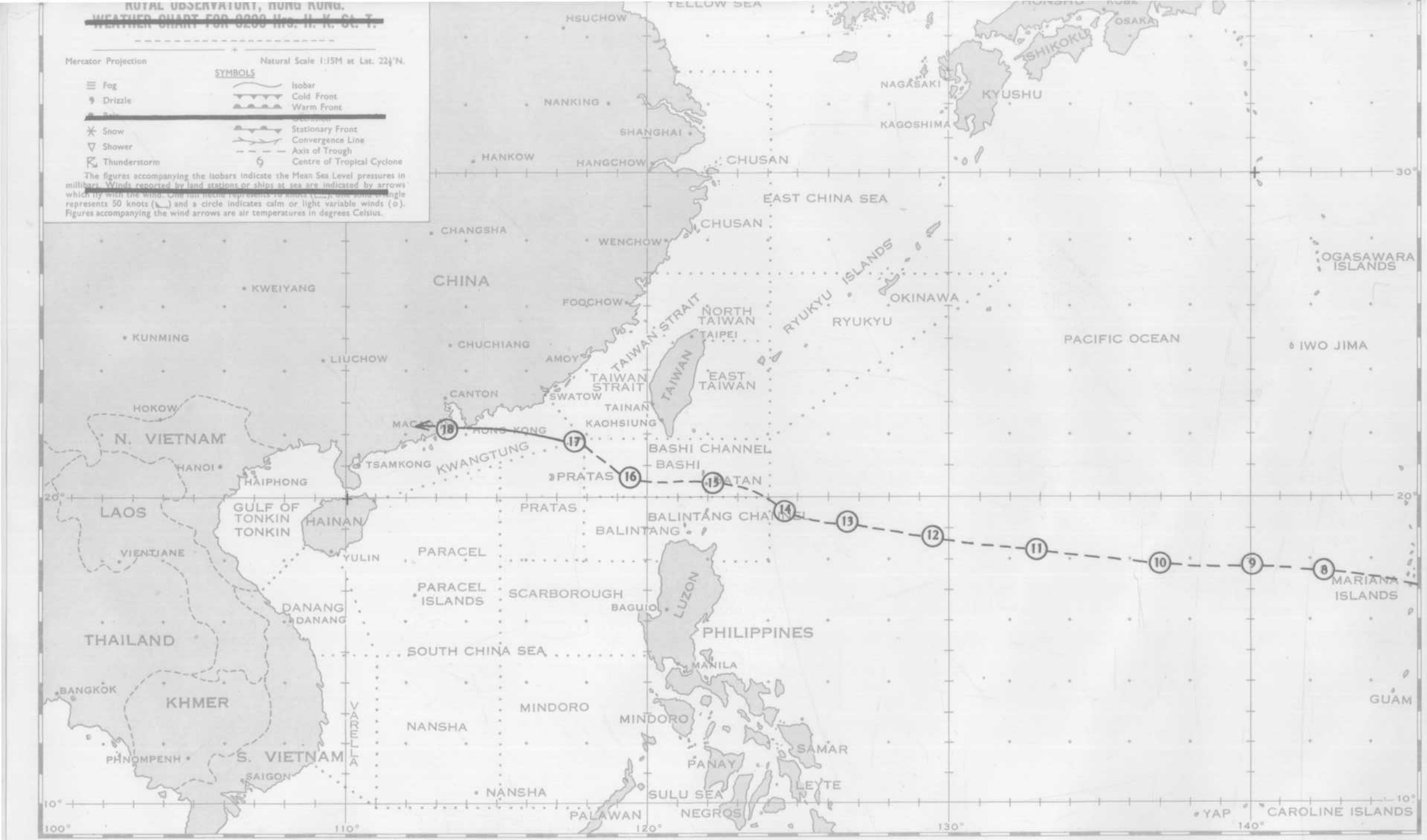
(6) ROBIN HUTCHEON, SOUTH CHINA MORNING POST, OCTOBER 1975.

* This figure was taken from Hutcheon, Ref. 6, but other figures from 4,000 to 10,000 have been suggested.



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TYPHOON OF 18 SEPTEMBER 1906