

HON. PREMIER'S FIRST REPORT TO THE NATION
APRIL 13, 1979 - LA SOUFRIERE ERUPTION

Fellow Vincentians, and I include here all those persons who have made St. Vincent their home or who are residing temporarily, by now, you must be aware that our volcano is once again behaving in an unusual manner and you will have felt the violent tremors coming from the Soufriere during the last few hours.

Since last night the tremors have been increasing in violence, and I have been in constant touch with the experts in Trinidad who have been monitoring the situation. It has now become clear that we must be on the alert and be prepared in the event of the worst happening.

It has now become clear that I must order an evacuation of the immediate surroundings of the Soufriere and the Volcano. There will be an orderly evacuation of all the people from the Dry River back to the areas of the Volcano and the Soufriere. On the Leeward side there will be an orderly evacuation of all people from the Richmond and Wallibou area, as far up as Troumaca and Belmont. There must be a complete evacuation of these areas. A Central Committee will be in constant touch. Headquarters will be set up immediately at the Central Police Station. The telephone number or various numbers will be given in a later broadcast, but I am appealing to the general public and particularly those in the areas who will be concerned with the immediate evacuation not to panic in any way, and to have our first phase of evacuation done in as orderly a manner as possible.

As a reminder I would like to repeat the names of the Central Emergency Relief Committee, and I would like these ladies and gentlemen to report to the Central Emergency Relief Committee Headquarters at Central Police Station immediately for further instructions and for the purpose of organising the steps which must be taken. The Minister of Home Affairs who is Deputy Chairman of this Committee; the Financial Secretary; the Commissioner of Police; the Chief Personnel Officer; all Permanent Secretaries; the Manager Central Water Authority; the Chief Engineer; I repeat the Chief Engineer; the Acting Chief Agricultural Officer; the Senior Medical Officer; the Executive Secretary Central Housing and Planning Authority; the Information Officer; the Warden of the Kingstown Town Board, the Representative of the British Red Cross who has been assigned to the Emergency Relief Committee; the Representative of the Chamber of Commerce, and the Representative of the Churches who has been assigned to the Central Relief Committee. A Representative of the St. Vincent Electricity Services; a Representative of Cable and Wireless; a Representative of the Jaycees; a Representative of the Hams; the Deputy British Government Representative; a Representative of the Rotary; a Representative of the Lions; the Permanent Secretary, Ministry of Home Affairs. The Permanent Secretary of Home Affairs is already on his way to Georgetown and need not report to the Central Police Station. We will be in touch with you. The names of all those who are required for an immediate meeting will be called again over this Station in a few minutes time. The names of all the persons who are required for an immediate meeting of the Central Emergency Relief Committee will be called over this Station in a few minutes time. In the meantime I am appealing to all those people north of

the Dry River and all those people in the environs of Wallibou and Richmond as far up as Troumaca and Belmont to prepare for immediate evacuation.

All drivers of the Funding Scheme Trucks and Vehicles are asked to report immediately. All gas station attendants are asked to standby immediately. There is no state of emergency, but this evacuation is necessary.

" Dr. Shepherd of the Seismic Research Centre should be in St. Vincent in a few minutes. I have been in constant touch with him since last night, and we have been monitoring the situation. The danger has been intensifying over the last few hours, and I have therefore decided to take the step of doing this first phase evacuation; but there is no necessity to panic. This first phase evacuation must be orderly, and you can rest assured that the Government and the Central Relief Committee will do everything possible to make all those persons who have got to leave their homes immediately, as comfortable as possible. We will keep you informed over this Station of developments from time to time. In the meantime we will repeat the list of persons who are required for a meeting of the Central Emergency Relief Committee at Headquarters, Central Police Station. We will keep you informed of developments as they arise. In the meantime the persons are asked to standby, all persons are asked to standby and listen for the reports which will be coming over this Station.

Thank you.

REPORT TO THE NATION
BY THE HON. PREMIER - R MILTON CATO
APRIL 13, 1979

Fellow Vincentians, and I include all those residents who have chosen to make St. Vincent their home, it is my duty to bring you up to date on the unfortunate circumstances which we face at present. I think I should tell it like it is, because this would help us to avoid some of the speculation and incorrect and damaging reports which become current at a time such as we are now experiencing.

Shortly after I spoke to you this morning, two experts from the Seismic Research Unit in Trinidad left from St. Vincent by aircraft and they approached the volcano from both the Windward and Leeward sides. These experts were Dr. John Shepherd, a Seismologist and Dr. Keith Rowley, a Geologist, who have spent the last few years studying the pattern and peculiarities of our Soufriere and the volcano. Indeed from the monitoring equipment set up at the centre in Trinidad, they have been in constant touch with the activities at La Soufriere.

Up to Wednesday the situation appeared to be normal. Yesterday (Thursday), the tremors which had been occurring infrequently increased and at midnight last night when Dr. Shepherd spoke with me by telephone, they had increased both in frequency and intensity. We decided that the Volcanologists would come to St. Vincent this morning to do as early as possible an 'on the spot' investigation.

However, early this morning, there was a definite eruption and the steam from the volcano reached a height of possibly 20,000 ft. I immediately took the decision to do a partial evacuation.

On arrival the Volcanologists approached the volcano from the Windward side and found that the visibility was very poor at a distance of less than $\frac{1}{2}$ a mile but that the Rabacca River remained dry. By this time, our evacuation programme was well in hand from both sides of the volcano. The Leeward approach was described as ominous and steam appeared to be coming out of the ground in the vicinity of Chateaubelair Islet. A similar phenomenon was taking place at Fancy.

It is my duty to tell you that the slopes of the Soufriere and its environs are definitely unsafe and no one should risk remaining in the area.

The seismologists have now embarked on a trip to check the volcano from as close a range as possible and to set up portable equipment at Belmont near Rose Hall to monitor its activities. The experts have advised me that there are two possibilities. The explosions may be steam explosions which may or may not be particularly dangerous. On the other hand, there might be an accumulation of fresh molten material which could prove to be of a far more serious nature. We now await the results of observations being made by our seismic research experts. In addition, I have been in close consultation with the U. S. Government through their Barbados Embassy and two experts will be arriving tomorrow morning to join our team, Dr. Richard Friske of the Smithsonian Institute and Dr. H Sigurdsson of the University of Rhode Island. The U.S. Government is also hoping to have an aircraft arrive here tomorrow with supplies for our various accommodation centres. We have already established 28 centres accommodating some 10,000 evacuees. We may have to accommodate many more.

I would like to acknowledge the voluntary and extremely helpful assistance which has been proffered from Trinidad and Barbados. Both these countries have responded very promptly to the news of our distress and their coast guard boats should be here very shortly. The U.S. plane should be here tonight, and we have contacts with helicopters from another country which are standing by in the event that we should need them.

Our local volunteers are doing a wonderful job and I would like to appeal to the evacuees to be patient while we continue to organise their welfare for what we hope and pray will be only a temporary disruption. I must however report that ash and mud - a danger signal can still be seen coming down the Larikai River and smoke is still rising from the crater. I shall continue to keep you informed of all developments as they arise. Please give all the assistance to all those who are less fortunate than some of us are at this time, and let us all pray to Almighty God for our survival and the recovery of our State from this unexpected misfortune which is making its presence felt by another eruption even as I now address you.

Let us all pray that God in his wisdom will preserve us and

that we will emerge from this peril a better people in a better country.

Thank you.

REPORT TO THE NATION
BY THE HON. PREMIER - R MILTON CATO

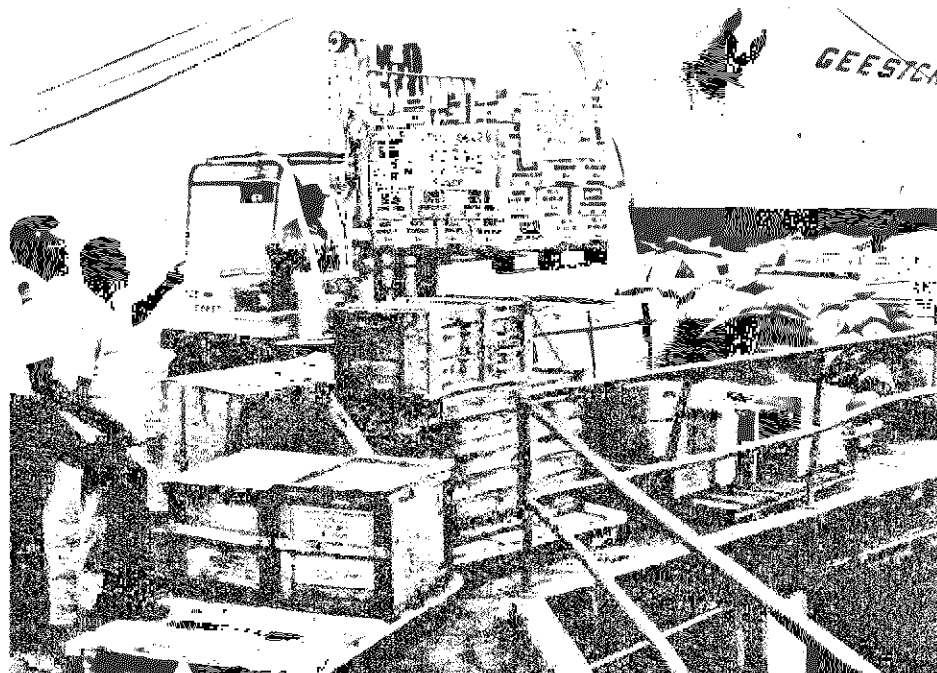
APRIL 16, 1979

Fellow Vincentians since I last spoke to you on Saturday 14th, I have had the benefit of a further report from our team of Volcanologists stationed at Belmont. This report of yesterday's date was compiled after discussions between Dr. Tomblin's team stationed at Belmont and Drs. Fiske and Sigurdsson, American Experts stationed on the Windward side of the volcano. The report reads and I quote:

"No further explosive activity between this AM and midday. Continuous ground tremor has declined. We have seen short strong vibration. These have increased between 3 pm and present. A visit has been made to the mouth of the Larakai River and it has been confirmed that material that descended this valley at noon on Saturday was a hot avalanche deposit.

The Americans in the area of Georgetown have identified a similar type of deposit in the upper part of the Rabacca River."

A further short report has come to hand this morning which reads, and again I quote:



AID ARRIVED FROM U.K. ON BOARD THE GEESTCRAFT



ASSORTING CLOTHING AT THE RELIEF CENTRE

"No further explosive activity. No continued tremor. Individual earthquake at longer intervals - one every three minutes. Two or three Scientists to go to Rabacca. Will measure till sites around Orange Hill and Ribishi. Looks as if it is on a downward trend."

Since then shortly before ten o'clock this morning I was able to make a close survey of the entire disaster area by helicopter provided by the United States Coast Guard. Leaving Arnos Vale Airport shortly before ten o'clock we proceeded along the Leeward side of the island where I had the opportunity of flying low over the accommodation centres at Layou and Barrouallie and then proceeded up towards the volcano to within a distance of some 800 ft. The crater was completely clouded over with mist and occasional visibility was very limited. There were large gullies cut out of the mountain side and the entire area was still covered over with ash. All vegetation was practically shrivelled up with only a few birds winging their way around. After a very close observation of this side we proceeded to the Windward side where the same signs of destruction appeared. There were heavy deposits of mud and silt dug out of the mountain sides and what appeared to be lava was still trickling slowly down the Rabacca River the course of which we followed in both directions. We retraced our flight and flew over the villages of Fancy, Owia, Sandy Bay, Overland and Orange Hill and on to Georgetown. There was no sign of life at Fancy and Owia, though at Sandy Bay there were two trucks, one which appeared to be completely covered with ash and the other surrounded by about one dozen people who with a few animals seemed to be the last sign of life at that part of the disaster area. Georgetown and Colonarie had taken on a ghost-like appearance and were still covered with ash. I returned to the Arnos Vale Airport with a very depressed feeling, overawed by the might and force of nature.

There are now two situations which call for decisions. The first one relates to the forecast as to how long the volcano will remain a threat. As you are aware, the Government of St. Vincent has been fortunate to have the services of two teams of experts who have been closely connected with the St. Vincent volcano over a number of years and who actually carried out investigations during the 1971 eruption threat. In addition they have now been joined by Mr. Viode and Dr. Westercamp of the Martinique Volcanic Observatory. They are continuing to make investigation and will report to me at frequent intervals, and I expect to have a further report within the next two hours. As of now the future course of the volcano remains unpredictable. We must continue to prepare for the perils of further and possibly heavier eruptions while we hope that the situation will return to normal.

I would like to make a very heartening observation and that concerns the high morale and the co-operation which the Government has received from all sections of the community, and in particular for the support and assistance which we have received from the United States Government, the Canadian Government, the United Kingdom Government in addition to the encouragement and support from almost all Caribbean countries. We have had the use of two warships on standby if needed for ferrying from one part of the island to another, and we have had the use of helicopters and

coast guard boats. In Ontario a Vincentian Canadian Committee is at work collecting funds and supplies for us; as indeed there is in the United Kingdom and the United States. The Canadian Government has despatched a C130 Hercules aircraft which brought us a self-contained field hospital unit of the Canadian Armed Forces, consisting of a hospital truck trailer and an ambulance vehicle complete with stocks of medical supplies. In addition, arriving by the same aircraft was the High Commissioner for Canada, His Excellency Mr. Alan Roger accompanied by one Doctor, one nurse and twelve medical assistants all selected in the light of the public health task which we have ahead. The aircraft will remain with us until the situation becomes clearer and will be used in the meantime for other tasks such as taking a kidney patient to Barbados (which it did this morning) and bringing equipment from St. Lucia, which arrived from London and will be transported here this evening.

It is unfortunate that in the face of all this public spiritedness on the part of so many people we still have a few politically inspired Vincentians who are zealously spreading malicious propaganda and endeavouring to create panic and discontent among our people. Happily they are failing and would continue to fail with their despicable designs. Government would have to consider very strongly taking steps to curb public mischief being committed by these persons who are spreading falsehoods knowing them to be untrue, with the sole intention of trying to discredit the efforts of the Government and decent citizens from all walks of life.

The second situation to which I referred earlier applies to the welfare of the evacuees, who unfortunately had to be dislocated and whose domestic life and business occupations had to be disrupted so suddenly. I want to give the firm assurance that Government will continue to do everything possible to restore the situation to normalcy at the earliest time possible while making conditions comfortable during their dislocation.

In addition to the Central Emergency Relief Committee which operates under my chairmanship, I am assisted by a number of technical and administrative officers who continue to work around the clock. Voluntary workers have responded admirably and are looking after the welfare of the people in over sixty accommodation centres already established.

You will be pleased to learn that an account in the name of the Emergency Relief Fund has been started at the National Commercial Bank and has got off to an excellent start with the first donation of \$25,000 from the Philatelic Services; \$50,000 from Mustique Company and \$100. from Mrs. Stephanie Nicholls. The Bureau has in addition been authorised to make a special issue of postage stamps with a 50% surcharge and the entire additional profit will be paid into this fund for the use of our distressed citizens.

Another distressing note is that certain persons not connected to the evacuees have seen it fit to borrow some of the equipment - blankets and cots - I must ask that these be returned immediately as I should be compelled to take strong action against these offenders.

I wish now to make a further appeal to our citizens generally. Our petrol supplies are not unlimited, and even without a crisis we could be very embarrassed by a shortage, but if there is a prolonged crisis then our position would be disastrous. I must appeal to all motorists to reduce their travel to a minimum and to ask yourselves as we did during the last war "Is my journey really necessary?" To all users of diesel, kerosene and domestic gas, please help us to avoid a shortage.

As you must be aware our school system has now been badly disrupted. I must regretfully inform you that all schools on the mainland of St. Vincent and on Bequia will be closed until further notice. The Principals and Headteachers of these schools are however required to meet with the Chief Education Officer at the Girls' High School at 10.00 a.m. on Tuesday. All Government Office's will function as usual as from Tuesday morning.

I would once again like to express my sincere gratitude to all those members of the public who demonstrated their willingness to make sacrifices and to work together in the interest of our State.

HON. PREMIER'S REPORT TO THE NATION
APRIL 18, 1979 - WEDNESDAY

Ladies and Gentlemen
Fellow Vincentians

Once again it is my solemn duty to report to you on the situation as it is pertaining to our volcano. Yesterday's activity must have brought home to all of you the point which I have been making for the last few days, that the volcano and its movements and activities are completely unpredictable. I want to emphasise again that the activities of the volcano, the pattern which it might follow is completely unpredictable. We are very fortunate here in St. Vincent that we have got a number of Volcanologists who have had the experience of working for some years on volcanoes in these parts, who have done a particular study of eruptions and the volcanoes connected with them in this part of the world; and also in particular three of the Volcanologists who have done work in the St. Vincent Volcano since 1971.

No effort has been spared in getting the best advice possible from all parts of the world. We have had Volcanologists, Seismologists, Scientists in from our Seismic Research Centre, headed by Dr. Tomblin, who worked on the 1971 volcano eruption and has been making a study of this particular volcano since then. We have also got a team of experts from the United States. We have had experts from Guadeloupe and Martinique and they are all here at the present time working from both sides of the island as on the Leeward approach to the volcano and the Windward approach to the volcano. They are constantly collating their efforts. Let me say that to date they have made a complete study of 83 different volcanoes and volcanic eruptions. Forty-three of them have been

properly and completely documented, and they have made a study of the behaviour patterns of these volcanoes. They have made a study of the volcanoes in this particular area, with particular reference to the eruptions of 1812 and 1902 at St. Vincent and Mount Pelee and therefore they are as equipped as anyone else in the world to advise us. Then again they will be the first to tell you that the behaviour pattern can be completely unpredictable and unexpected.

Yesterday after a calm of two days when we had felt that the pattern was following the 1902 behaviour pattern we got a matter of just two minutes notice from the up-to-date equipment which we have planted in Belmont. Modern and up-to-date equipment under an experienced team.

It was at 4.56 p.m. when there was the beginning of continuous tremor recorded on the seismograph. At 4.57 one minute after the rumble from Soufriere started; eruption clouds started to rise above the crater. At 5.00 an avalanche of eject started to travel down the Larakai Valley and the eruption clouds continued to grow in height. At ten minutes past five, airborne ash began to fall into the sea. At 5.17 large particles, pea-size particles started to fall not only on Belmont but progressively on various parts of the island. At 5.19 the tremor ceased to be recorded on the seismograph and the eruption was apparently over. But continuing from then ash began to fall and in some parts of the State ash is still falling.

I wish to emphasize now that following on that a further report came in from the Volcanologists this morning at 6.45 and the report reads:

"Since the explosive event of 5 p.m. last evening earth quake activity has almost stopped. During the last 14 hours there has been only one earthquake and two brief periods of tremor. The volcano has therefore entered a different phase of activity. And I will repeat this - the volcano has therefore entered a different phase of activity, there is a reduction in activity".

I have had the opportunity to discuss the implications of this with the Volcanologists and in fact this particular reference has got frightening implications. It means again that a pattern of unpredictable behaviour is taking place. After discussions with the experts it is my duty to tell you that there might be three alternatives: It is possible that this reduction will continue and that there might be a gradual phasing out of activity and an eventual return to normal. Let us all hope and pray that this will take place. In the second alternative the activity might be stepped up and we might get a recurrence of what took place yesterday. In the third alternative we might get a recurrence of what took place yesterday but with greater violence, and not necessarily in the same direction. In sum, what I must say to you is that we can expect during the next ten hours to have some form of violent activity coming from the volcano. I repeat, it is my duty to tell you that during the next ten hours there possibly will be some form of violent activity coming from the volcano. This does not mean that we must panic. I have given you the first alternative which means

that activity might progressively reduce and the situation remain normal. Neither the Volcanologists nor myself can tell you with any degree of certainty or accuracy what pattern this volcano will follow at this time in spite of the intensive study which has been made over a number of years and particularly over the last few days.

We will continue to prepare in the long term, we will continue to carry out the preparations which we have started. We hope that there will be no further activity. If there is any activity, we hope that it will be no worse than it was yesterday. If it is worse we hope it will be confined within very narrow limits.

I must caution you now that it is dangerous to enter into the environs of La Soufriere. I must issue a prohibition on any entry beyond Spring Village - Cumberland. No one must proceed in the direction of the Soufriere on the Leeward side beyond Spring Village - Cumberland. On the Windward side, no one must proceed beyond Colonarie. I repeat, and this caution will be repeated over this Radio Station in the course of the next few hours, that no one must proceed beyond the points mentioned. It will be dangerous to you, and you will be taking an entirely unnecessary risk.

It is possible that nothing will occur and there will be no activity but this could not be guaranteed. And with the unpredictable pattern which has been taking place, there is the possibility that there will be an eruption within the next few hours in our lovely State.

On the welfare side of things, I am very happy to note the ready response which we have had to our appeal for help and assistance. I will deal on another occasion with the tremendous assistance which we have had from our friends in the United Kingdom. This morning the High Commissioner, stationed in Barbados and representing the United Kingdom Government, will be arriving in St. Vincent. They have already, from the United Kingdom Government, sent us substantial assistance and we have the pledge of further substantial assistance. The United States Government has been of tremendous assistance and their Coast Guard and their other ships and their helicopters have been and still are at our service and disposal.

Our Canadian friends have been a tower of strength, and have been constantly sending supplies and assistance. They are still represented here on the island and will remain here as long as we need their assistance.

I would like to refer particularly to the local volunteers and the teams of workers who have been assisting to make the evacuees as comfortable as possible. Unfortunately, I must state that the evacuees have not been equally responsive to the help which the voluntary workers have been giving. They have been causing considerable difficulties for the volunteer workers and have not been co-operating. I must appeal to the evacuees in all the various sixty-one camps throughout the State, and naturally this is a generalization. There are some where the standard of behaviour is excellent, the others where it is hopeless and rotten, and I am appealing to everyone concerned in any way to do everything possible to ensure the highest

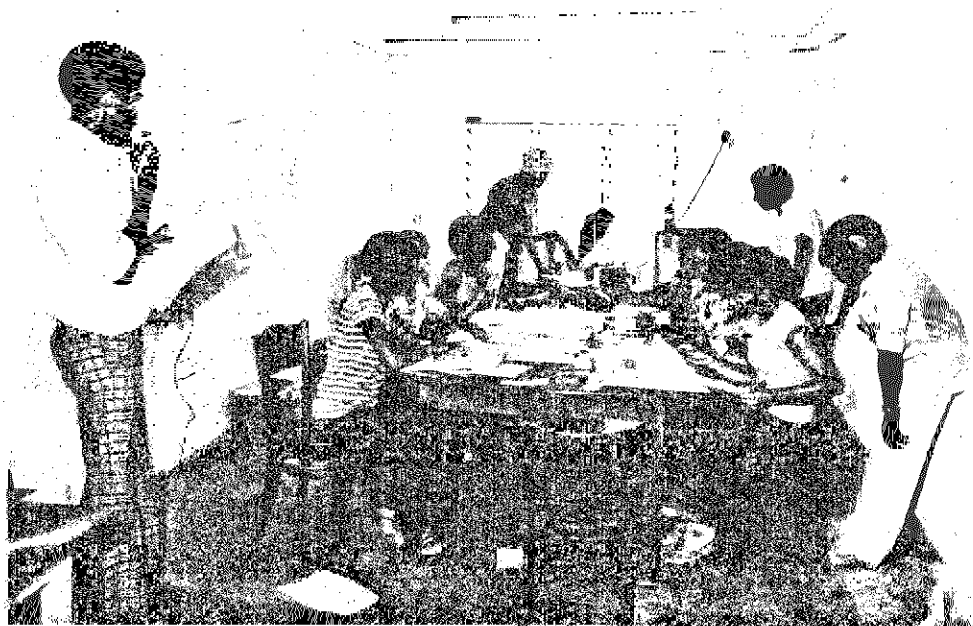
possible standard of co-operation from the evacuees. The evacuees must remember that the voluntary workers are not their paid employees. They are doing their best to help them and they must show some response to this. I hope I will not have to touch on this point again. But if the pattern of behaviour among the evacuees, certain evacuees continues to take place, then stronger measures will have to be taken to restrain them and to help us maintain the high standard which have been set by a number of others in different camps.

Again we have had incidence of larceny. This time not only among evacuees but from outsiders; from people who are trying to exploit the situation. We have had instances of shop-breaking and general misconduct is stepping up in this moment of crisis. The Police have been asked to take particularly strong measures, and I want to assure all citizens that we will be on the alert to give the maximum protection possible. I would like to repeat that all persons who are interested in joyrides, who are interested in visiting sites are asked to keep away from the prohibited area, and to keep away from congesting the streets in any part of the State, and not to travel and use petrol and energy unnecessarily. I hope that this warning will be taken seriously and that it will not be necessary to use any other enforcement measures.

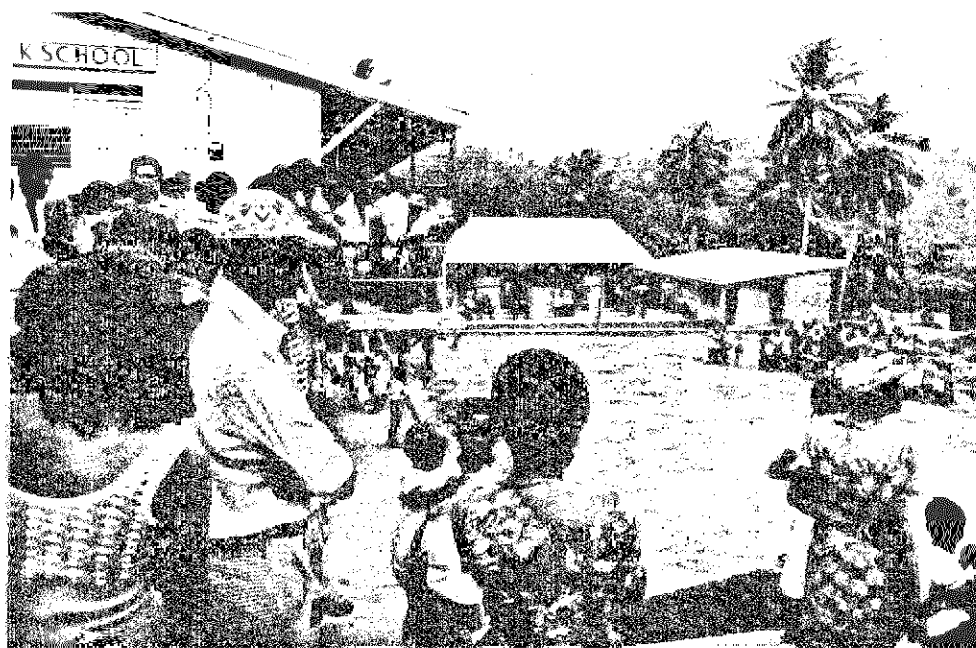
Another happy note is that our appeal for contributions at the local level has met with tremendously good response. Yesterday, on the first day we have passed the \$28,000 mark. At the time that I began this broadcast this morning we had already passed the \$50,000 mark, and the indications are that we will double this before the end of the day. This does not mean that we are anywhere out of the wood in this respect. The expenses involved are extremely high. The per diem cost of maintaining these 61 camps is tremendously high, and we will afterwards have to face the problem of rehabilitation which ever of the alternatives I have mentioned might take place.

We have got voluntary camp leaders who are doing an excellent job. Their telephone numbers and addresses and the stations over which they have charge will be published, and has indeed already been published. We are asking the public for their continued co-operation. I want to repeat that there is no cause for panic. Lets maintain the calm. All of us maintain the calm which we have shown so far. I feel it is my duty to keep you up to date on all information which I have at my disposal. I do not propose to rush to the microphone or to the radio station every few minutes. At the present time we have got Volcanologists on the Leeward side of the island and on the Windward side of the island. They are in contact as closely as possible with each other and with us at the Central Emergency Committee Headquarters. And from this Station 705 you will be getting frequent broadcast on the situation.

The position as I have explained to you is that there is a great possibility of a further eruption during the course of the next ten hours. We can not predict how much notice we will get. We can not predict how sudden it will be. I ask you to continue with your normal activities, maintaining calm and be on the look-out for any further information which we might be in a position to bring to you. If the activity ceases and nothing happens we can all give praise to Almighty God. If on the other hand there is further abnormal activity,



AT THE EMERGENCY OFFICE



AN EVACUATION CAMP

then we must be prepared to deal with the events in a calm manner, to give all the assistance possible, to co-operate one with another to see that as little damage as possible is done.

Thank you.

ADDRESS TO THE NATION
by
THE HON. R MILTON CATO
MAY 2, 1979

Fellow Vincentians, as I have emphasized from the outset of the eruption the only thing certain about our volcano is its unpredictability. The science of volcanology is still too young for anyone to state with a great degree of certainty what is likely to happen in our present circumstances. Very often in fact there are as many different predictions as there are volcanologists. Fortunately this has not happened in our case, because for a number of years now responsibility for observation of our volcano has been vested in the University of the West Indies. Their seismic unit coordinates all views, evaluates them and presents them to me, thus saving us the task of muddling our way through a mass of conflicting opinion. The Scientists are agreed that the eruption has so far lasted longer than those of 1718 and 1812 but of course not as long as that of 1902, which went on for about a year. The pattern that seems to be emerging is one of intense volcanic activity alternating with periods of almost complete, if not complete inactivity. It is as yet too early to say which period of inactivity indicates that the volcano has once again become dormant. This is what is so frustrating about a disaster of this type. In the case of a hurricane or an earthquake, by now, the 20th day of our evacuation it would have been long over and we would have started on the task of rebuilding our State. As it is we still wait in a state of almost suspended animation.

We cannot however afford to throw our hands up in despair. We can look at such evidence as is available and on the basis of our findings make certain decisions. With this in mind, I shall first outline the causes of the eruption that have been so far put forward then proceed to mention the most dangerous aspects of the eruption, and finally, I shall deal with the relative safety of the various areas we have evacuated. Let me make it quite clear from the outset that the scientists have said that it is not for them to advise on matters relating to the timing and duration of evacuation. Their function is to observe, analyse and present me with the facts. It is for my Government to take the decisions which we consider to be in the best interest of our citizens and of our State.

The first explanation which has been put forward is that the water in the crater lake is seeping down through the vent in the volcano and mixing with the magma, that is, molten rock, which is always present in volcanoes of this type. It is this mixture that is causing the present eruptions. If this theory is correct then it is reasonable to argue that once all the water in the lake has

been removed, the eruptions will cease. Most of the observations to date seem to support this explanation. For instance, from the scientific reports it would appear that the intensity of the eruptions seem to be declining. I know that this will seem to conflict with what a lot of our people have observed for themselves. For instance, most people would have noted that Kingstown had its most severe ash fall on the night of Wednesday the 25th April. But this in fact supports the theory. Normally when there is a violent eruption there is sufficient force to carry the ash to about 60,000 feet into the air and when it reaches that height the anti-trade winds blow it in an easterly direction, that is, towards Barbados. On Wednesday however there was no great force in the eruption and dust simply went up to about 26,000 feet, forming a mushroom cloud which descended upon Kingstown. Since Kingstown and its environs contain the majority of our people, particularly at this time, it naturally seemed a very serious eruption.

The second theory on which the scientists are working is that rather than water seeping down from the crater lake and interacting with the magma and so causing the eruptions, the magma itself contains its own water. If this is the cause we are even less certain about what is likely to happen. We must all therefore hope that the first theory proves correct and that the eruption will cease when the water in the crater lake disappears completely.

I turn now to what is considered the most dangerous element in our type of volcanic eruption. It is the so-called Black Cloud, or the Glowing Avalanche. What happens in a Glowing Avalanche is that a thick mixture of ash and cinder suspended in very hot gas flows out of the crater and following the easiest routes runs down the flanks of the volcano at a very rapid rate. The phenomenon has been compared to that of milk boiling over the side of a saucepan. These Glowing Avalanches are dangerous for three reasons:

- (1) They travel so rapidly, often at hurricane speed, that people who are in their paths cannot escape between the time they appear over the crater rim and when they reach the foot of the volcano.
- (2) Glowing Avalanches are capable of striking with sufficient physical force to destroy wood or concrete buildings or at least to set them on fire.
- (3) The heat and gas that surround the Glowing Avalanche simply stifle to death persons who get caught in its path or immediate surroundings.

Glowing Avalanches did occur with the eruptions of Saturday April 14. They were observed in the Larikai, Wallibou, Roseau and Rabacca Rivers. However, no one was killed by these Glowing Avalanches simply because there was no one in the immediate vicinity. Some tree trunks and other bits of wood that happened to be in the area were of course burnt to cinder as the scientists afterwards discovered. These however can only affect certain areas since it is obvious that an avalanche whether glowing or not, cannot flow through or over a mountain ridge and much of St. Vincent is in fact protected by mountain ridges.