440
No. 26

U.S. Consulate at
Jerusalem, July 11th 1883.

Hon. John Davis
Assistant Secretary of State,
Washington

Sir.

I have the honor to present the following Report upon the climate of Palestine with eight accompanying Tables.

I remain, Sir, respectfully,
Your obedient Servant.

Consul

One Enclosure
Report upon the climate of Palestine.

Introduction

The following report and accompanying Tables have been prepared in the hope that the information contained in them will prove of general interest and utility, for most of the observations the time embraces a period of twenty two years.

Scattered notices upon the climate of Palestine exist in many volumes, but for the most part the periods of observation were only limited ones, and hence, while all such notices are useful, they cannot be entirely satisfactory, such notices may be found in the works upon Palestine by Robinson, W. M. Thomson, R. G. Barclay, Schulz, Russegger, Anderson (connected with Lieut. Lynch's expedition to the dead sea), H. B. Tristram, and some others.

The most lengthy and valuable summary of this entire subject that is generally accessible, is to be found in the American edition of Dr. Wm. Smith's Dictionary of the Bible, 4 Vols., Roy. 8 vo. this however was published fifteen or more years ago.

Some recent and valuable papers upon this general subject have appeared from time to time in the quarterly statements of the English Palestine exploration fund.

I may be allowed to refer to my own observations which embrace a period of more than three years. During the two years that I was at work in the country in connection with the American Palestine Exploration society I made very full observations upon the climate, only a fraction of which however were published in my volume entitled "East of the Jordan: A record of travel and observation in the countries of Moab, Gilead, and Bashan, during the years 1875, 1876, 1877", published by Charles Scribner's Sons New York, it having been designed to publish them in full in another work, together with my notes upon the Geology, Botany, and especially the topography of the country east of the Jordan including the Dead Sea and the Jordan valley.

The person however to whom we are indebted for the fullest and most accurate observations upon the climate of this country in general, and of Palestine in particular, is Thomas Chaplin M. D. who has under him competent assistants so that the work has gone on uninterruptedly for a period of upwards amount of material upon this subject in his possession and which he has kindly placed at my disposal, that I have based the brief compilation which I have made and which I hereby forward to the Department.

Seasons in Palestine

There are in Palestine two seasons, a rainy season and a dry one. The shortest rainy season in twenty two years has been 126 days, and the longest 221 days, while the mean duration of each has been 188 days.

On the other hand the shortest dry season for the same period was 134 days, and the longest 211 days, while the mean duration of each was 177 days.

The time of the commencement of the rain is uncertain and varies many weeks between the two extremes. In September the people of the country begin to talk about rain and to look for the tokens of it, but as will be seen from this report rain very seldom falls during that month, and further that in eleven of the years under consideration no rain fell even in October. When rain does not fall until the middle or the last of November great anxiety and distress are caused by the delay.

By a reference to Table II. it will be seen that in four of the twenty two years there was a slight fall of rain in September, but rain during this month is to be considered as exceptional.

The "Early", Middle, and "Latter" rains.

Every one is familiar with the terms "The early" and "The latter rain" which refer to parts of the rainy season. The rainy season, however, is really divided into three parts, and it is during the middle one of these periods that the most rain falls. It is very seldom that many days of rainy weather occur in succession. But whether the rainy periods are of one or of several days duration they are sure to be followed by one or many days of fine weather, and then fine days of the winter and early spring months are some of the most enjoyable that the climate of Palestine affords.

"The Early rain" is depended upon to moisten the earth and fit it for the reception

reception of seed. And hence it is a general signal for the commencement of plowing.

The middle of heavy winter rains furnish the real water supply of year. The earth is then saturated, springs are replenished, and cisterns filled with water.

The "Latter rain" which falls in gentle showers is indespensible to the perfection of the grain. However copious may have been the winter rains unless the latter rain falls the harvest is wholly or in part a failure. Hence this is looked for by the farmers especially, and by all the people of land and well, with peculiar anxiety.

Rain and the price of Wheat.

With reference to the table showing the connection of the price of wheat with the rainfall it should be remembered that many causes besides the actual fall of rain operate to affect the price of wheat. War and other political disturbances when agriculture laborers are taken in large numbers for soldiers, have something to do with it, and after a very bad harvest the people are to poor to sow largely the ensuing season consequently the price of wheat remains high even though there is an ample supply of rain during each of its three natural seasons. Furthermore the price of wheat as well as of other commodities has steadily increased during the last twenty years.

Connection of wind and rain

The table which gives details of the connection of the wind with the rain fall rain is one of considerable interest.

Most of the rain storms come from a westerly direction. Of those noted 49 were from the North West, 156 from the west, and 238 from the south west. On 149 occasions however an easterly wind immediately preceded the change which ushered in the rain.

Not infrequently the direction of the wind changes during a storm; if it passes to the North the rain ceases; while a change from any quarter to the South West usually indicates a continuance of the rain.

Temperature during rain falls

The temperature of the air on 369 occasions became lower as the rain fell. On 90 occasions it rose slightly, and on 47 it remained stationaly, or nearly so, until the rain ceased.

Snow.

During twenty two years eight seasons have passed without snow against fourteen seasons when snow has fallen. In general snow falls in small quantities and soon melts, but occasionally there is a heavy fall, that of the 28th and 29th of December 1879, which was extremely heavy, measured seventeen inches on a level.

Earthquakes.

Most of the earthquakes that have been noted occured during the rainy seasons. Eight occurred during actual storms and four of these during snow storms. It is interesting to observe further that in nearly every instance they had been preceded or were followed by an easterly wind.

Barometer

Jerusalem is 2600 feet above the level of the Mediterranean, and the mean height of the Barometer during twenty one years has been 27.398. The highest reading during this period was 27.816, on the 31st of December 1879; the lowest 26.972 on the 22d of April 1863 and on the 3d of February 1865; so that the extreme range has been 0.844. The mean annual range has been 0.626.

Cold, heat, and frost.

The coldest month in Jerusalem is February, in which month the mean temperature during the last twenty two years has been 47.9 degrees fahrenheit. It rises month by month until August when the mean temperature was 76.1 degrees, and then sinks again month by month until the following February. The mean temperature during this period was 62.8 degrees.

The hottest days of the year do not occur however in August, but usually in the months of May, June, and September.

The lowest point that has been registered by the thermometer during this period was 25 degrees Fahr. which was on the 20th of January 1864. in February and October also and once in April a minimum of 32 deg. and 30 deg. has been noted. These cases are however notably exceptional.

In Jerusalem frost occurs five or six nights in the course of a winter, but ice is rarely ever formed.

Winds.

A peculiar feature of the climate of Palestine is its strong winds. Its physical conformation has doubtless sometimes to do with this. It is a ridge of rugged mountains running North and South which drop to a broad maritime plain on the west and on the East to a deep chasm sunk into the earth to a depth of 1300 feet below the level of the Mediterranean, beyond which chasm which is the Jordan Valley, another ridge of mountains rises abruptly to a height equal to or greater than that of the Western ridge, and beyond this in turn a vast table land stretches eastward to the Euphrates and southward into Arabia.

Both the inhabitants of the country and its crops are largely affected by the prevailing winds. The North wind is cold, the South warm, the East dry, and the West is moist. North and north Westerly winds prevail most in the summer months, when they are cool and refreshing, moderately dry,

day, and accompanied by few or no clouds. The North winds of winter are cold and sharp.

Their coolness and sharpness, even in summer, are apt to produce sore throat, fever, and dysentery.

Without the strong westerly winds of summer the climate of Jerusalem would be unbearable. Occasionally these winds do not blow for several days in succession and at such times the heat becomes very great. As a rule this strong westerly breeze comes up every afternoon. It is felt at Jaffa and at other places on the coast as early as 9 or 10 A. M., but it does not reach Jerusalem until from 2 to 4 P. M. Generally it subsides about sunset but rises again later in the evening and sometimes continues through a great part of the night. Consequently however hot the day may have been in Jerusalem the nights during the summer season are almost always cool. Thus this wind, although often strong, disagreeable, and filling the air with clouds of dust, is a great blessing to the inhabitants. But at the same time it makes it very necessary for them to take precautions to protect themselves from its influence at night.

Easterly winds are rare in summer while they are common in each of the other seasons. The average for sixteen years has been three day of easterly winds for each month from June to September, and eleven days for each month from October to May inclusive –

East wind and Siroccos.

The East wind in winter is usually accompanied by a clear blue sky, and is dry, stimulating, and, if not too strong, very agreeable. In the warmer months it is unpleasant and depressing from its great heat and dryness, and the haze and dust which occasionally accompany it. The south east winds are those which are popularly termed siroccos and which are most disagreeable. "The worst kind of sirocco" say Dr. Chaplin "dries the mucous membrane of the air passages, producing a kind of inflammation resulting in catarrah and sore throat; It induces great lassitude, incapacitating for mental as well as bodily exertion, in those who walk or work in it; Headache, with a sense of constriction as if a cord were tied round the Temples, oppression of the chest burning of the palms of the hands and soles of the feet, accelerated pulse, thirst, and sometimes actual fever. It dries and cracks furniture, loosening the joints of tables and chairs, curls the covers of books and pictures hung in frames, parches vegetation, and sometimes withers whole fields of young grain. Its force is not usually great, but sometimes severe storms of wind and fine dust are experienced, the hot air burning like a blast from an oven, and the sand cutting the face of the traveller and has the misfortune to encounter it. This kind of air has a peculiar smell, not unlike that of the neighborhood of a burning brick kiln. Sometimes the most remarkable whirlwinds are produced, especially in the western plain near the hills, by the meeting of a strong east or south east wind with a wind from the west or north. Clouds of sand fly about in all directions, now taking the traveller in front, now behind, and now on the side and the gusts of wind are so violent as to blow weak persons from their horses, and to overturn baggage animals. The cold sirocco of winter often blows with much force, and when it comes from a few degrees north of east, it is so cold and piercing as sometimes to kill those who are exposed to it without sufficient clothing, instances of which occurred in the year 1867."

It is an old and popular saying with the people of the country that a sirocco always lasts three days, but they have been known to last for twenty and even for thirty days.

Clouds

A noticeable feature of Palestine is its cloudless skies. There have been an average of 140 days in each year for 16 years which were cloudless at 7 A. M. Still during a large part of the year clouds are present, and they affect the climate in various ways, but chiefly by moistening the atmosphere and by producing a shade which moderates the otherwise intense heat of the sun. The smallest amount of cloud during the year is in the months of July and August.

Dew.

During the winter months dew falls in Palestine in the ordinary way and hence needs no special notice; but in the summer months, when the whole country is arid, and there is no water to evaporate, the copious dews are brought entirely by the westerly winds from the sea. If no westerly breeze, or but a very light one, springs up towards evening, there is no dew. The heavy dews of summer which modify the climate so remarkable differ from ordinary dew in the manner of their deposition, being in great part precipitated in the air in the form of mist before being deposited on the earth. On summer evenings a few clouds are commonly to be seen in the western horizon soon after sunset. Later in the evening they increase in number, become lower and looser, and sweep fast at no great elevation, and often with considerable velocity. Towards midnight or later, they become still more abundant and still lower, brushing the tops of the hills as they pass, and depositing much of their moisture upon them. Although dew may fall, even in summer, in the usual way on clear nights, the surest sign of a copious deposition is the appearance of clouds with a westerly wind after sunset."

Dew is most copious in the spring, and in September and October, except during sirocco weather when there is none.

Clouds

Clouds and a westerly wind at sunset and afterwards are not. However, always indications of a very damp night. It is the continuance of the westerly wind during the night that brings abundance of dew.

Often at day break the sky is obscured by a heavy mist and the ground is wet as if rain had fallen. When the sun begins to act upon this mist large masses of white cloud are formed which, however, soon disappear before the great heat, leaving overhead only the usual dull blue sky of summer.

Unhealthy period of the year

The unhealthy period of the year, the period in which the climatic diseases of the country, such as Ophthalmia, fevers, and Dysentery, are most prevalent, extends from May to October inclusively. Six things strongly characterize this period, 1st almost entire absence of rain, 2d low atmospheric pressure with small range, 3d high temperature with great daily range, 4th great dryness of the atmosphere, 5th a very small amount of cloud, and 6th except at the beginning and end of this period, a minimum of easterly winds.

While I have been completing this report the Cholera has broken out in Egypt and a strict quarantine has been established in all the Syrian ports. In this connection therefore it may be of interest to add a note respecting the climate of Jerusalem in October, 1865, when the Cholera raged in this city with considerable violence. The period from the 7th to the 24th of that month was one of great and oppressive heat. During the whole eighteen days the sky was cloudless but overspread with a thin haze; the wind was from the north west, north, and east, but so light as to be considered a calm, except on the 15th and 16th when there was a light breeze from the east. The highest temperature was 94 degrees, and on eleven days it rose to at least 90 degrees, during the period the mean of maximum temperatures was 89.1, and of the minimum temperatures 65.8, the mean temperature for the period being 77.4 degrees. This high temperature together with the calm, close, hazy atmosphere, was supposed to have some influence in spreading the cholera.

Table showing the date of the commencement and termination of the rainy season for each year from 1860-1 to 1881-2, the number of rainy periods during each year, the length of the rainy periods, the total number of rainy days in each year, the length of the intervals of fine or dry weather, the total number of fine or dry days during the rainy season, and the duration of the rainy season during each year.

Year	Comm.t & Term.n of rainy per, ds	no. of rainy per, ds	l'gth rainy p, ods	no. of rainy days	l'gth of int. ods of fine weather	fine or dry days in each year	duration of rainy season
1860-1	Nov. 12th May 25th	20	1-14	40	1-22	155	195
1861-2	Nov. 14th April 29th	21	1-6	44	1-20	123	169
1862-3	Nov. 1st April 28th	22	1-6	?	1-15	?	179
1863-4	Oct. 13th April 26th	22	1-7	43	1-22	154	199
1864-5	Nov. 10th May 9th	24	1-3	37	1-18	144	181
1865-6	Nov. 1st April 21st	22	1-8	58	1-15	144	172
1866-7	Oct. 4th May 12th	25	1-6	65	1-28	156	221
1867-8	Nov. 10th May 27th	22	1-6	62	1-31	138	200
1868-9	Nov. 2nd May 7th	29	1-5	61	1-13	126	187
1869-70	Nov. 15th April 22nd	21	1-5	43	1-22	116	159
1870-1	Oct. 13th May 2nd	20	1-11	49	1-42	153	202
1871-2	Oct. 23rd May 24th	23	1-5	53	1-28	162	215
1872-3	Oct. 6th May 3rd	22	1-6	46	1-26	164	210
1873-4	Oct. 24th April 5th	27	1-7	71	1-19	93	164
1874-5	Nov. 3rd May 1st	27	1-6	57	1-21	123	180
1875-6	Nov. 13th May 16th	27	1-4	51	1-22	135	186
1876-7	Oct. 9th April 28th	22	1-4	41	1-28	161	202
1877-8	Oct 20th May 7th	30	1-5	68	1-18	132	200
1878-9	Nov. 28th April 2nd	16	1-4	37	1-22	89	126
1879-80	Oct. 28th May 2nd	22	1-8	55	1-21	133	188
1880-1	Oct 17th May 21st	22	1-8	56	1-31	161	217
1881-2	Nov. 5th May 23rd	20	1-13	60	1-18	140	200

948.
II

Table showing the number of months in which rain fell during each year from 1860-to 1882 the total number of rainy days during each year, the month having the smallest number of rainy days, the month having the largest number of rainy days, and the total amount of rainfall during each year.

Year	No. months during wh. rain fell	Months	Tot. no. da. on wh. rain fell	Month hav'g smallest no rainy days	Month hav'g largest num. rainy days	Tot. rain in inches.
1860-1	7	Nov.-May	40	April 1 da.	Jan. 14 da.	21, 647
1861-2	6	Nov.-April	44	Mar. Nov. 3 ea.	Jan 14 da.	24, 262
1862-3	6	Nov.-April	?	?	Mar. 10 da.	22, 862
1863-4	7	Oct.-April	43	Nov. 1. da.	Dec. 12 da.	20, 338
1864-5	(exceptional because rain fell in Sept. on 2 days, amount. 091 inches and no rain fell in Oct. report corresponding to other years as follows:—					
	7	Nov. May	37	April May 3 ea.	Feb. 8 da.	15, 475
1865-6	6	Nov. April	58	April 4 da.	Jan. 14 da.	18, 999
1866-7	8	Oct. May	65	April 3 da.	Dec. 13 da.	26, 737
1867-8	7	Nov. May	62	May 1 da.	Feb. 18. da.	29, 058
1868-9	7	Nov. May	61	May 2 da.	Jan. 15. da.	24, 916
1869-70	(exceptional because rain fell in Sept. on 1 day, amount. 270 inches and no rain fell in Oct. report continues as follows:—					
	6	Nov. April	43	Feb. 1 da.	April 13 da.	12, 269
1870-1	8	Oct. May	49	Nov. May 1 ea.	March 16 da.	19, 145
1871-2	8	Oct. May	53	Nov. 1 da.	Feb. 17 da.	18, 481
1872-3	8	Oct. May	46	May 1 da.	March 11 da.	18, 942
1873-4	7	Oct. April	71	Oct. 1 da.	March 20 da.	39, 512
1874-5	7	Nov. May	57	May 1 da.	Jan. Mr. 14 ea.	26, 610
1875-6	(exceptional because rain fell in Sept. 1 day, amount. 030 inches, and no rain fell in Oct. report continues as follows:—					
	1	Oct. May	51	May 4 da.	Feb. 10 da.	16, 465
1876-7	7	Oct. April	41	Oct. 1 da.	Feb. 13 da.	13, 700
1877-8	8	Oct. May	68	April 2 da.	Jan. 14 da.	42, 932
1878-9	(exceptional because rain fell in Sept. on 2 days, amount. 790 inches no rain fell in Oct. report continues as follows:—					
	6	Nov. April	37	Nov. 1 da.	Mar. 17 da.	15, 310
1879-80	8	Oct. May	55	May 1 da.	Jan. 15 da.	23, 565
1880-1	8	Oct. May	56	Oct. 1 da	Dec. 15 da.	26, 585
1881-2	7	Nov. May	60	Mar. May 4 ea.	Feb. 16 da.	25, 005

Mean of 21 seasons

October	1.50 da.	.514 inches
November	5.31 "	1.664 "
December	9.04 "	4.718 "
January	10.28 da.	5.479 inches
February	10.43 "	5.207 "
March	8.51 "	3.531 "
April	5.45 "	1.448 "
May	1.59 "	.199 "
Total	52.11 da.	22.760 inches.

January

III. Table showing the connection of rain with the direction of the wind during the rainfall for the aggregate number of rainy periods from 1860-1 to 1881-2, also the number of rainy periods that were preceded by an easterly.

Year	No. of rainy pe'ds	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Easterly wind prec'g.
1860-1 to 1881-2.	506	8	14	12	10	19	238	156	49	149.

IV. Table showing the connection of the rainfall with the temperature for the aggregate number of rainy periods during the years from 1860-1 to 1881-2—

Years	No. of rainy pe'ds	With the fall of rain the temperature		
		Fell	Rose	Remained unchanged.
1860-1 to 1881-2	506	369	90	47

V. Table showing the connection of the rainfall with barometric changes for the aggregate number of rainy periods during the years from 1860-1 to 1881-2.

Years	No. of rainy pe'ds	Merc. preceding rainfall I			Merc. during rainfall II			
		Rain began after			During the rain the mercury			
		grad'l fall of merc.	Fall of one day only	Slight rise	Rose	fell	First rose then fell	Remained steady
1860-1 to 1881-2	506	248	144	114	281	69	132	24

150

VI. Table showing the connection of the price of wheat with the rainfall for the years from 1860-1 to 1881-2.

Years	No. of rainy days	Tot. am't rainfall (inches)	Am't of latter rain (inch)	Price of wheat per measure in Palestine	Remarks
1860-1	40	21.6	2.975	17	- A measure of wheat is about 48 pounds
1861-2	44	24.2	1.475	16	
1862-3	2	22.8	4.112	12	
1863-4	43	20.3	1.675	18	- a piaster is about 4 cents
1864-5	37	15.4	1.135	23	
1865-6	58	18.9	2.436	21	
1866-7	65	26.7	4.649	18	
1867-8	62	29.0	3.913	22	
1868-9	61	24.9	3.414	18	
1869-70	43	12.2	5.499	28	
1870-1	49	19.1	3.760	25	
1871-2	53	18.4	1.628	18	
1872-3	46	18.9	1.555	24	
1873-4	71	39.5	6.352	24	
1874-5	57	26.6	6.830	18	
1875-6	51	16.4	2.315	17	
1876-7	41	13.7	.935	34	
1877-8	68	42.9	2.952	25	
1878-9	37	15.3	3.825	39	
1879-80	55	23.5	4.755	29	
1880-1	–	–	–	–	
1881-2	–	–	–	–	

VII. Table showing the fall of snow in Jerusalem during the years 1860-1 to 1881-2.

Year	None	December	January	February	March	April	Amount.
1860-1	—	— —	5	1			
			11	2	— —	— —	deep in February
1861-2	"						
1862-3	—	— —	24	22	— —	— —	1 inch
1863-4	"						
1864-5	"						
1865-6	"						
1866-7	"						
1867-8	—	— —	— —	14			
				16			
				22			
				26			
				27			
1868-9	"						
1869-70	—	— —	— —	— —	— —	7	
						8	1.8 inch
1870-1	"						
1872-3	— —	— —	— —	18			
1873-4	—	— 26 —	— 10 —	— 6 —	— 1 —	— —	in Dec. 3 inches
			23	7	3		
			31	28	6		
					17		
					18		
					9	—	8 1-2 inches
1874-5	—	— —	— 10 —	— —			
					27		
1875-6	—	— —	— —	4			
1876-7	—	— —	— —	8 —			
				17			
1877-8	—	— —	28	15			
				16		—	5 inches
				17	—		
						—	in Dec. 17 inches
1878-9	"			—	11		
1879-80	—	28	— —	—	14		
		29	—	—	20		in Feb. 4 1-2 inches
1880-1	—	—	—		—	—	
1881-2	—	—	22	3			

452

VIII. Table showing shewing the date circumstances, and various phenomena of the earthquakes that have been observed in Jerusalem during the years from 1860 to 1881-2.

Year	Date	Hour of the day	Barom. at previous	Barom. at next	Wind	Weather
			9. A. M.	9. A. M.		
1863	April 22d	10.45. P.M.	26. 972	27. 308	W.	Changing with severe thunder storm from east to west.
	Sept. 24th	8. 15. P.M.	27. 522	27. 484	W.	Clear
1864	March 24th	2.30. A.M.	27. 472	27. 466	E.	Changed from east to west in afternoon.
1868	Jan. 24th	3. 50 P.M.	27. 572	27. 522	W.	Changed to East next day.
	Feb. 19th	Midnight	27. 262	27. 252	W.	Rain and snow followed
	Oct. 7th	7.30 P.M.	27. 527	27. 512	W.	Storm, thunder and rain, changing from Sirocco.
1870	June 24th	7 P.M.	27. 472	27. 442	W.	Clear and still
1873	June 29th	2.30. A.M.	27. 492	27. 522	W.	Clear and still
1874	March 3d	1. 40. A.M.	27. 472	27. 350	S.W.	Snowstorm.
1877	Feb. 15th	7. 15. A.M.	27. 472	27. 390	S.W.	Snow followed.
	Mar. 14th	6. 15. A.M.	27. 352	27. 286	N.W.	Changed from east on the day previous.
1879	Dec. 31st	9. A.M.	27. 512	27. 816	N.	Snow.

U.S. Consulate at Jerusalem, July 11th 1883.

Consul

No. 27

U. S. Consulate at
July 31st 1883.

Hon. John Davis
Assistant Secretary of State
Washington.

Sir.

I have the honor to transmit herewith a Report on the proposed Jordan Valley Canal with a Map.

I remain, Sir, Respectfully,
Your obedient Servant.

Consul

With two enclosures
1 Report on the proposed Jordan Valley Canal.
2 Map of the same " " "

The Jordan Valley Canal

The opening of the Suez Canal gave additional importance to the already leading place which Egypt and Syria held in the affairs of the East but this new interest was chiefly of a commercial rather than of a political character.

The civilized world looked with astonishment upon the creation of this great highway of commerce along the borders of these two countries though the very desert not did any one expect when in the face of many difficulties the canal was actually opened, that the event would so soon be followed by demands for a new one.

The increase of travel and commerce on this new route to the East has been little less than marvellous, and to relieve the pressure upon it various propositions have from time to time been made which have awakened a deep interest among the prominent men in every civilized nation, but chiefly among those of England and France.

To build a canal (1) through Egypt in an altogether different direction from the existing one (2) to widen the present canal; or (3.) to construct another by the side of it, are among the suggestions that have been made and advocated with ability by different parties.

Proposal