A SHORT CIPHER CODE FOR COMMERCIAL USES.

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NOT long since I was called upon to arrange a cipher code which should be convenient for telegraphing complex astronomical messages, as the elements and ephemerides of comets, etc. Such a one is printed in the publications of the Astronomical Society of the Pacific, No. 49. A part of this code will be of use for commercial purposes also, particularly in transmitting *dates* (month and day) and *numbers*.

One merit of the code is the shortness of its tables, which require only three octavo pages, as below. Care has been taken to choose the combinations of letters

which go to make up the cipher words, so that few mistakes are likely to occur in transmitting the messages by telephone. The eye is liable to make one kind of error and the ear a different kind. So far as practicable, both kinds have been avoided in these tables. Large code books, like Slater's excellent Telegraphic Dictionary, will always be required for some uses. The great majority of commercial telegrams can, however, be sent by the following code of three pages. All *dates* are to be sent as words of three letters taken from Table I, and interpreted by Table III; thus *Hil* = one hundredth day of the year = April 10 (in common years or April 9 in leap years). *Numbers* must always be sent as compound words of eight letters, composed of a prefix from Table I and of an affix from Table II; thus, *Hilofant* = 10072, *Rokalone* = 28615,

Faninary = 06356, etc. It will prevent mistakes to write five figures to correspond to every number word, as 00172 for 172 (*Bakofano*), 01724 for 1724 (*Bolative*), 00006 for 6 (*Bafadore*), etc. Words of three letters must be reserved for dates; and the five letter words of Table II should be used only as affixes.

The telegram should be written out in plain English and its dates and numbers should then be turned into cipher, thus: "Send 4,000 cases on June 16, and draw on us for \$11,724 July 3" might be written "Send *Dilnicht* cases *Kol*. Draw on us *Hunative Lap*."

In messages with many figures the saving in expense would be considerable over cable lines; and proportionally more over the Western Union lines.

If it is desired to make the messages absolutely secret, this can readily be done.

The sender writes his message in figures, adds some arbitrary number, as 1,171 for instance, to each number, translates the message so transformed into cipher and sends it. The receiver translates the cipher words into numbers and subtracts 1,171 from each number. Other simple devices of the sort are too well known to need description.

I think that the code in question will be convenient in many commercial transactions, on account of its extreme simplicity and shortness.

Its words are pure jargon, of course. But this jargon has been so chosen as to be easily pronounced, and its combinations are so arranged as to make the chance of error a minimum.

EXPLANATION OF TABLES I, II, III.

Precepts: Table I. Read the initial at the top of the column with a combination from the column "Vowels;" as *Hok* = 106, *Noy* = 501. I. All *numbers* are expressed by words of eight letters. Such words are made up of a *prefix* from Table I with an *affix* from Table II. Thus, 10647 = *Hokience*; 01065 = *Bilitous*. Numbers larger than 50999 must be divided into two parts, A and B, and telegraphed as A + B. Thus, 80711 = 40000 + 40711, which is telegraphed as *Winit* plus *Wolahold*, and so on. When angles are in question, the degrees (only) are given by Table I, and the minutes by Table II; as 35° 29' = *Tinegate*; 0° 15' = *Bafalone*. II. All *dates* are expressed as *local dates* invariably in words of three letters (prefixes) taken from Table I, and interpreted by Table III. *Example:* *Hok* (standing alone) = 1064 = April 16 (local date); November 29 = 3334 = *Tan*.

TABLE I (PREFIXES).

The table gives numbers (with Table II; *local dates* (if used alone; see Table III).

N. B.—Write three figures to correspond with each prefix. *Example:* *Fil* = 070, not 70.

Vowels.	B	D	F	H	J	K	L	M	P	R	S	T	V	Vowels.	W	Y	Z	N
<i>af</i>	000	030	060	090	120	150	180	210	240	270	300	330	360	<i>af</i>	390	420	450	480
<i>ak</i>	001	031	061	091	121	151	181	211	241	271	301	331	361	<i>ak</i>	391	421	451	481
<i>al</i>	002	032	062	092	122	152	182	212	242	272	302	332	362	<i>al</i>	392	422	452	482
<i>an</i>	003	033	063	093	123	153	183	213	243	273	303	333	363	<i>an</i>	393	423	453	483
<i>ap</i>	004	034	064	094	124	154	184	214	244	274	304	334	364	<i>ap</i>	394	424	454	484
<i>ar</i>	005	035	065	095	125	155	185	215	245	275	305	335	365	<i>ar</i>	395	425	455	485
<i>at</i>	006	036	066	096	126	156	186	216	246	276	306	336	366	<i>at</i>	396	426	456	486
<i>az</i>	007	037	067	097	127	157	187	217	247	277	307	337	367	<i>az</i>	397	427	457	487
<i>if</i>	008	038	068	098	128	158	188	218	248	278	308	338	368	<i>if</i>	398	428	458	488
<i>ik</i>	009	039	069	099	129	159	189	219	249	279	309	339	369	<i>ik</i>	399	429	459	489
<i>il</i>	010	040	070	100	130	160	190	220	250	280	310	340	370	<i>il</i>	400	430	460	490
<i>in</i>	011	041	071	101	131	161	191	221	251	281	311	341	371	<i>in</i>	401	431	461	491
<i>ip</i>	012	042	072	102	132	162	192	222	252	282	312	342	372	<i>ip</i>	402	432	462	492
<i>it</i>	013	043	073	103	133	163	193	223	253	283	313	343	373	<i>it</i>	403	433	463	493
<i>od</i>	014	044	074	104	134	164	194	224	254	284	314	344	374	<i>od</i>	404	434	464	494
<i>of</i>	015	045	075	105	135	165	195	225	255	285	315	345	375	<i>of</i>	405	435	465	495
<i>ok</i>	016	046	076	106	136	166	196	226	256	286	316	346	376	<i>ok</i>	406	436	466	496
<i>ol</i>	017	047	077	107	137	167	197	227	257	287	317	347	377	<i>ol</i>	407	437	467	497
<i>on</i>	018	048	078	108	138	168	198	228	258	288	318	348	378	<i>on</i>	408	438	468	498
<i>op</i>	019	049	079	109	139	169	199	229	259	289	319	349	379	<i>op</i>	409	439	469	499
<i>or</i>	020	050	080	110	140	170	200	230	260	290	320	350	380	<i>or</i>	410	440	470	500
<i>oy</i>	021	051	081	111	141	171	201	231	261	291	321	351	381	<i>oy</i>	411	441	471	501
<i>oz</i>	022	052	082	112	142	172	202	232	262	292	322	352	382	<i>oz</i>	412	442	472	502
<i>ud</i>	023	053	083	113	143	173	203	233	263	293	323	353	383	<i>ud</i>	413	443	473	503
<i>uf</i>	024	054	084	114	144	174	204	234	264	294	324	354	384	<i>uf</i>	414	444	474	504
<i>ug</i>	025	055	085	115	145	175	205	235	265	295	325	355	385	<i>ug</i>	415	445	475	505
<i>ul</i>	026	056	086	116	146	176	206	236	266	296	326	356	386	<i>ul</i>	416	446	476	506
<i>un</i>	027	057	087	117	147	177	207	237	267	297	327	357	387	<i>un</i>	417	447	477	507
<i>up</i>	028	058	088	118	148	178	208	238	268	298	328	358	388	<i>up</i>	418	448	478	508
<i>uz</i>	029	059	089	119	149	179	209	239	269	299	329	359	389	<i>uz</i>	419	449	479	509

NUMBERS. TABLE II (AFFIXES).

These are always used with prefixes from Table I. N. B.—Write two figures to correspond with each affix. *Example:* *Adieu* is 04.

00	-nicht	20	-arine	40	-estry	60	-iptik	80	-olute
01	-aband	21	-aship	41	-eting	61	-irekt	81	-omane
02	-abate	22	-aside	42	-event	62	-irize	82	-omist
03	-about	23	-ation	43	-ibale	63	-iside	83	-omous
04	-adieu	24	-ative	44	-ibode	64	-itark	84	-oniks
05	-adize	25	-atrup	45	-ibrew	65	-itous	85	-opsis
06	-adore	26	-avish	46	-ident	66	-iture	86	-orate
07	-aflow	27	-eblow	47	-ience	67	-itude	87	-ordik
08	-afiras	28	-educue	48	-ifold	68	-ivate	88	-ormus
09	-agile	29	-egate	49	-ijest	69	-oblat	89	-orous
10	-aglow	30	-eglet	50	-ilade	70	-ocean	90	-ostik
11	-ahold	31	-egraf	51	-ilant	71	-odate	91	-ugale
12	-akute	32	-ejekt	52	-ilege	72	-ofant	92	-ulate
13	-alist	33	-elekt	53	-imate	73	-often	93	-ulent
14	-alive	34	-elope	54	-iment	74	-ogism	94	-ulous
15	-alone	35	-embue	55	-imony	75	-ogive	95	-umate
16	-ament	36	-endow	56	-inary	76	-ogoon	96	-upate
17	-amope	37	-erade	57	-iness	77	-olist	97	-urant
18	-annex	38	-erkin	58	-inize	78	-olize	98	-urile
19	-arose	39	-eroon	59	-inade	79	-olode	99	-usipe

Precepts: To express numbers, use Tables I and II; as *Manifold* = 21348. To express angles, *Manifold* = 213° 48'.

DATES. TABLE III. DAY OF THE YEAR CORRESPONDING TO EACH MONTH AND DAY (COMMON YEARS).

Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	Day of Month.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day of Month
1	1	32	60	91	121	152	1	182	213	244	274	305	335	1
2	2	33	61	92	122	153	2	183	214	245	275	306	336	2
3	3	34	62	93	123	154	3	184	215	246	276	307	337	3
4	4	35	63	94	124	155	4	185	216	247	277	308	338	4
5	5	36	64	95	125	156	5	186	217	248	278	309	339	5
6	6	37	65	96	126	157	6	187	218	249	279	310	340	6
7	7	38	66	97	127	158	7	188	219	250	280	311	341	7
8	8	39	67	98	128	159	8	189	220	251	281	312	342	8
9	9	40	68	99	129	160	9	190	221	252	282	313	343	9
10	10	41	69	100	130	161	10	191	222	253	283	314	344	10
11	11	42	70	101	131	162	11	192	223	254	284	315	345	11
12	12	43	71	102	132	163	12	193	224	255	285	316	346	12
13	13	44	72	103	133	164	13	194	225	256	286	317	347	13
14	14	45	73	104	134	165	14	195	226	257	287	318	348	14
15	15	46	74	105	135	166	15	196	227	258	288	319	349	15
16	16	47	75	106	136	167	16	197	228	259	289	320	350	16
17	17	48	76	107	137	168	17	198	229	260	290	321	351	17
18	18	49	77	108	138	169	18	199	230	261	291	322	352	18
19	19	50	78	109	139	170	19	200	231	262	292	323	353	19
20	20	51	79	110	140	171	20	201	232	263	293	324	354	20
21	21	52	80	111	141	172	21	202	233	264	294	325	355	21
22	22	53	81	112	142	173	22	203	234	265	295	326	356	22
23	23	54	82	113	143	174	23	204	235	266	296	327	357	23
24	24	55	83	114	144	175	24	205	236	267	297	328	358	24
25	25	56	84	115	145	176	25	206	237	268	298	329	359	25
26	26	57	85	116	146	177	26	207	238	269	299	330	360	26
27	27	58	86	117	147	178	27	208	239	270	300	331	361	27
28	28	59	87	118	148	179	28	209	240	271	301	332	362	28
29	29	..	88	119	149	180	29	210	241	272	302	333	363	29
30	30	..	89	120	150	181	30	211	242	273	303	334	364	30
31	31	..	90	..	151	..	31	212	243	..	304	..	365	31

Precept: In leap-years, add one day after February 28. This table is to be used in connection with Table I to obtain the *local date* to the nearest day. Thus, August 10 = 222 days = *Mp*.