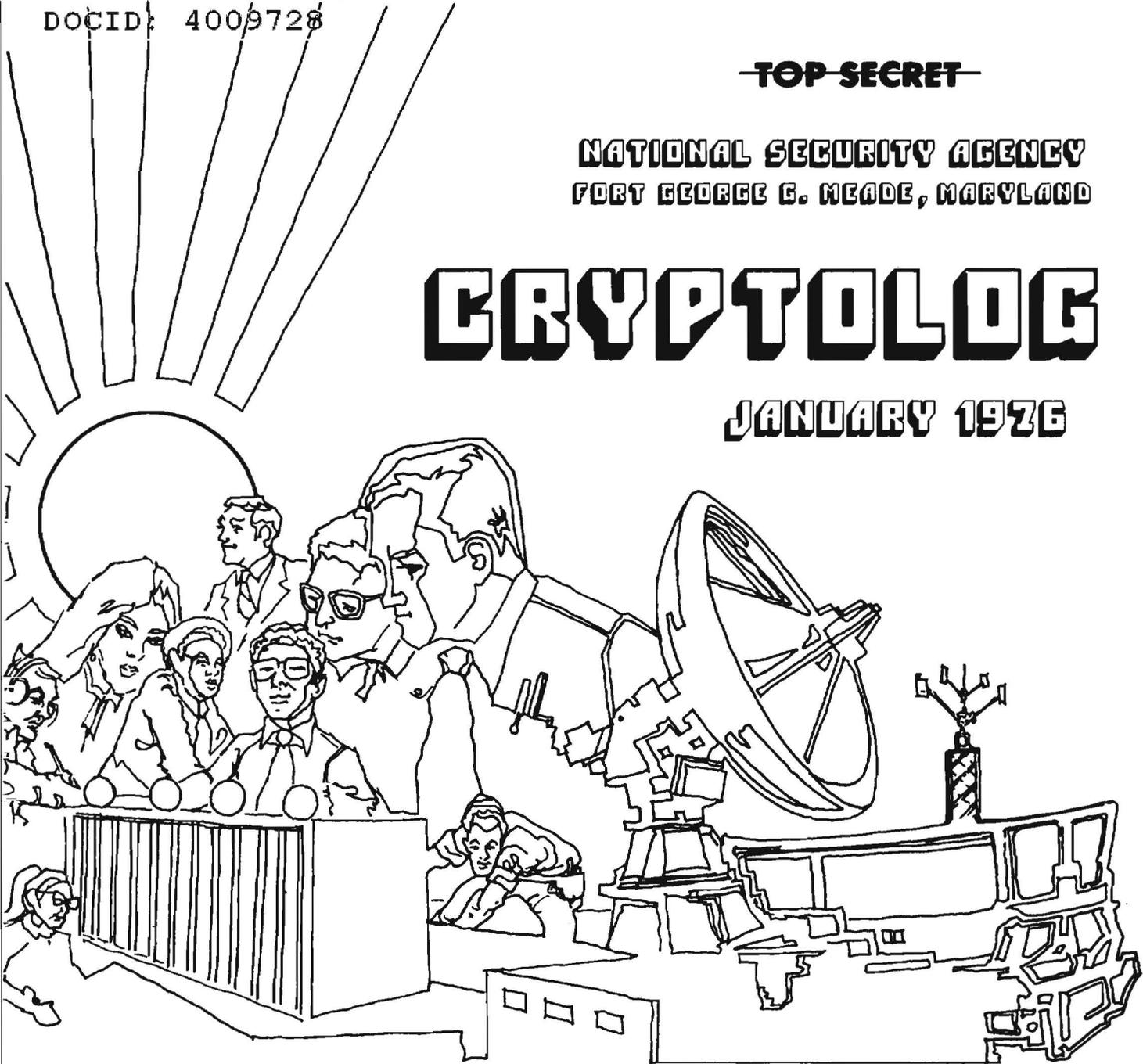


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NATIONAL SECURITY AGENCY
FORT GEORGE G. MEADE, MARYLAND

CRYPTOLOG

JANUARY 1976



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~~SECRET SPOKE~~

63 DAYS --THE SOVIETS IN SPACE

On 24 May 1975 two veteran Soviet cosmonauts, Lieutenant Colonel Petr Klimuk and civilian Vitalij Sevast'yanov, were launched into space onboard a *Soyuz*-type spacecraft from the Tyuratam space center. The next day this *Soyuz*-18 spacecraft successfully docked with a *Salyut*-type space station which had been launched in December 1974 and had been visited in January 1975 by two other cosmonauts. Thus began the longest space flight in the history of the Soviet manned space program -- a flight lasting 63 days.

This long flight set a human endurance record not only for the cosmonauts but also those of us here at NSA and at various field sites who are involved in the collection, transcription, analysis, translation, reporting, and computer programming of cosmonaut voice communications.

Because of the increased activity in this field in the past 2 years, there has been hardly enough time between launches to study the information received and prepare data for subsequent flights. Since September 1973 to the present there has been a total of eight space flights, including the joint Apollo-*Soyuz* flight in July 1975.

The Soviet manned space program began on 12 April 1961 with the successful launch of a *Vostok* spacecraft piloted by the "first man in space," Major Yuriij Alekseevich Gagarin. This brief journey into space (the spacecraft made only one revolution around the earth) began a program of space activity which has included the launching of three separate series of spacecraft and one series of space stations. The entire Soviet manned space program, beginning with the *Vostok* spacecraft in 1961 and through

the *Soyuz*-19 spacecraft in July 1975, totals 28 flights involving 34 cosmonauts.

Three series of spacecraft

In the first series of spacecraft, the *Vostok* series, from April 1961 through June 1963, there were six flights, two per year, each piloted by a single cosmonaut. The longest flight, *Vostok*-5, lasted 5 days and made 81 revolutions around the earth. The series ended with the launch of *Vostok*-6, piloted by the first woman cosmonaut, Valentina Tereshkova.

The successes of the *Vostok* series led to a second series of spacecraft, the *Voskhod*. There were only two flights in this series. The first one, in October 1964, lasted only one day, but it provided another "first" for the Soviet Union. Instead of a single cosmonaut, three cosmonauts were onboard the spacecraft. This brief flight was repeated in March 1965 with the launch of *Voskhod*-2, piloted by two cosmonauts.

Two years intervened before the launching of the third and current series of spacecraft, the *Soyuz*. From April 1967 through July 1975, 20 *Soyuz* spacecraft were launched, the last one being *Soyuz*-19 during the joint Apollo-*Soyuz* flight. Soviet spacecraft are given a number only if they achieve orbit. A *Soyuz* vehicle launched on 5 April 1975 was manned, but it failed to achieve orbit, had to be aborted, and was therefore unnumbered. This accounts for the latest *Soyuz* being designated *Soyuz*-19.

Space-station series

The manned space program came to a halt after 30 June 1971, when the three cosmonauts onboard the *Soyuz*-11 spacecraft died during reentry into the earth's atmosphere after they had spent

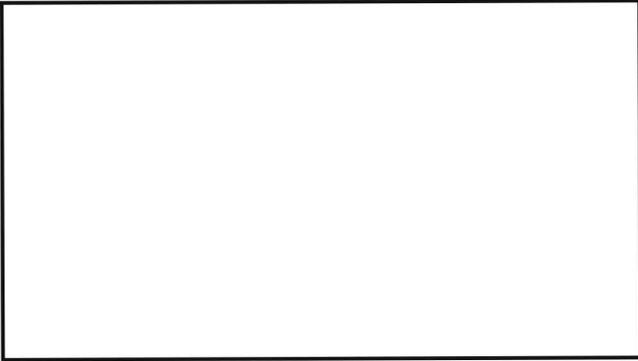
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23 days in space onboard the first Soviet space station, the *Salyut-1*. More than 2 years passed before the launch of *Soyuz-12* on 27 September 1973.

There were four space stations (actually, orbiting scientific laboratories) in the *Salyut* series. The first station, launched in 1971, was visited by the *Soyuz-10* and *Soyuz-11* spacecraft. However, only the *Soyuz-11* crew transferred into the station. In 1973 a second *Salyut* was launched, but it broke up in space before it could be occupied. Then, in 1974, *Salyut-3* was launched and was visited by two spacecraft, *Soyuz-14* and *Soyuz-15*. Only the *Soyuz-14* crew transferred into the station; the *Soyuz-15* crew failed to dock with the station and had to return home after only 2 days in space.

The *Salyut-4* space station, launched in December 1974, was the only station successfully occupied by two separate crews -- the first in January 1975 by the *Soyuz-17* crew, Aleksej Gubarev and Georgij Grechko, and the second in May 1975 by the *Soyuz-18* crew, Petr Klimuk and Vitalij Sevast'yanov.



Cosmonaut's day in space

The cosmonaut's day in space is arranged to provide 8-9 hours of sleep, four meals a day, 2½ hours of prescribed physical exercises, 1½ to 2 hours of free or personal time, and the remaining time for performing various technical, astrophysical, medical, biological, geophysical, solar, and photographic experiments. Besides this, periodic checks are made on both the space station's and the *Soyuz* spacecraft's propulsion and life support systems.

Each day the cosmonauts consume four meals which they call first breakfast, second breakfast, dinner, and supper. There are about 40 types of food items onboard, consisting of fruit juices, beverages such as coffee and cocoa, various meats and fish, cheese, soups, and candy, cookies, and fruit for dessert. Food is contained in aluminum tubes, small cans, and plastic wrapping (some of which is edible) and is stored in a small refrigerator or special food containers. There are also food warmers for heating the meats and soups and other food items.

Physical exercises are required every day to maintain muscle tone and to combat the harmful effects of a weightless environment. The 2½ hours of required activity is spread out through the day. In the exercise area there is a treadmill or "running track" on which the cosmonaut can walk or run. Special exercising suits called "Penguin" and "Athlete" are worn and are so constructed that they exert a stress on various body muscles. The suits have elastic cords which connect from the cosmonaut's belt to the treadmill, thus creating an additional stress on the body. Other exercising equipment includes a special wheelless bicycle, a chest-pull device, and an exercising bar.

At regular intervals among the many days of intensive work on the required experiments and medical tests, there are days that are designated a "day of rest." In addition to the daily exercises and medical tests that are required even on "days off," the cosmonauts still have plenty to do: they must organize the results of their investigations of the previous day's work, clean the space station with a special vacuum cleaner called *Raketa*, and fill waste containers with used paper, empty food tubes, and other garbage for later ejection through their "garbage chute." Only then can they relax by reading some of the books in their small library or by listening to music on prerecorded tapes.

Experiments in space

Several biological experiments were conducted by the *Soyuz-18* crew to study the effects of weightlessness on the growing of plants, the embryological development of amphibians, and the genetic development of insects. Special biological incubators called "biotherms" contain microorganisms, fruit flies, animal tissue cultures, frog eggs, and algae. In a space greenhouse called "Oasis," several plant varieties such as the pea and onion are grown from seeds in artificial soil. The plants are watered automatically and their development is photographed by a special movie camera.

Medical experiments and tests are very important for studying the effects of weightlessness on the body under conditions of a prolonged stay in space. The cosmonaut's health is a major concern on any space flight and his physical and mental condition must be monitored daily. A special onboard medical device called *Polinom* is used to measure such things as pulse rate, respiration, and cardiovascular functions. Throughout the flight, certain days are designated "medical monitoring days" on which a series of medical tests and experiments are conducted. Blood samples are taken for later laboratory analysis; the reaction mechanism and adaptive abilities of the brain's blood circulation system are studied by using a medical apparatus called *Levkofj*; ultrasonic measurements of the density of bone tissue are

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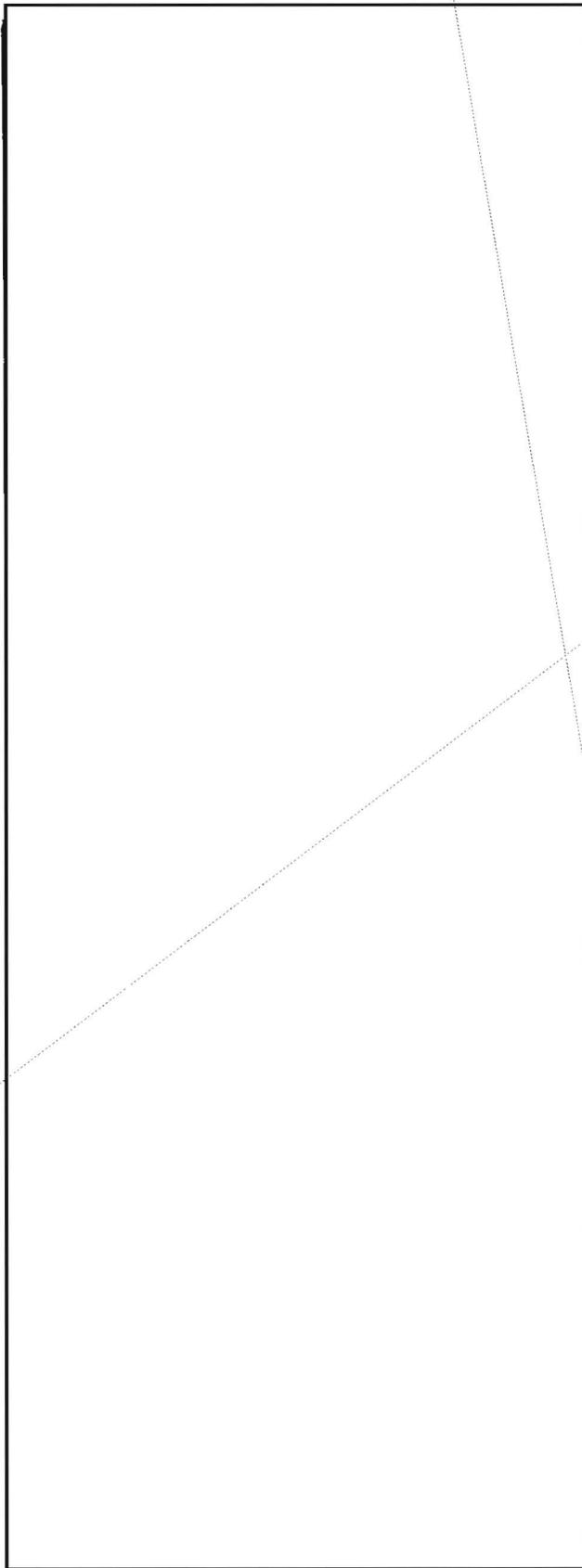
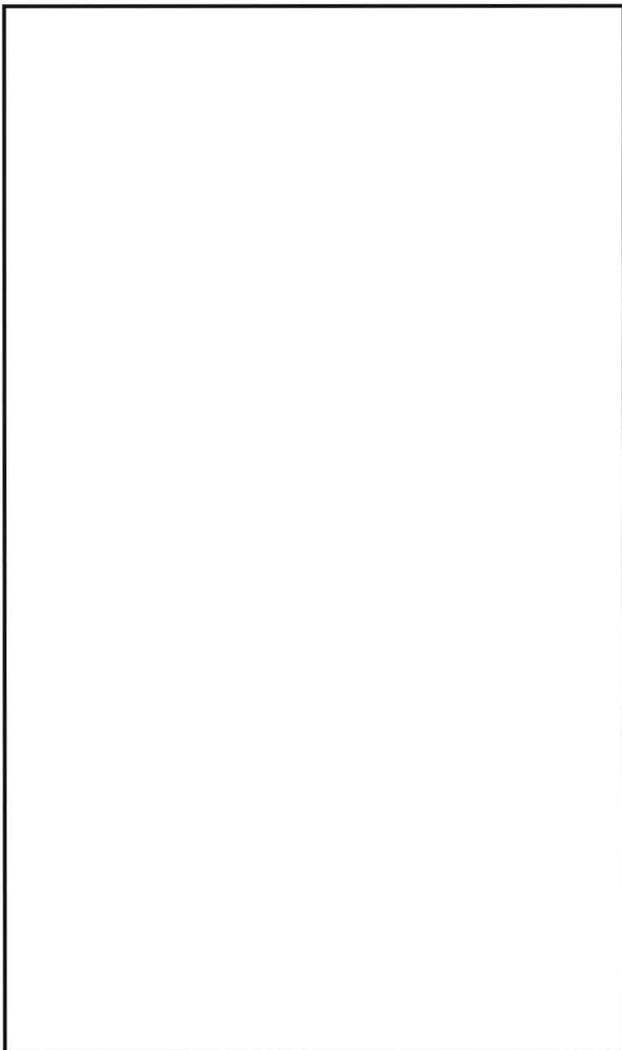
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P.L. 86-36

made on the *Plotnost'* instrument. The *Tonus* is an instrument for the electrical stimulation of muscles; the *Rezeda* is a medical apparatus for studying pulmonary ventilation and for taking breath samples for later laboratory analysis. Along with the names of these medical monitoring devices, the cosmonauts use many abbreviations to indicate the recording of various arterial pressures. For example, *PBA*, *PLA*, and *PSA* sensors record femoral, radial, and carotid artery pulses. Besides the standard electrocardiograms, other cardiovascular recordings are made; in voice communications they are referred to by the abbreviations *KKG*, *FG*, *TO*, *SFG*, and *SKG* (kinetocardiogram, phlebogram, tachooscillogram, sphygmogram, and seismocardiogram, respectively).

While all this medical data is extremely important for studying the cosmonaut's physical condition, the mental state of each cosmonaut is also studied by a psychoneurologist at the Flight Control Center, who makes a psycholinguistic analysis of the cosmonauts' speech to help evaluate the crew's state of health.



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Sometimes the cosmonauts themselves do not always remember what an abbreviation means. But this is also true of American astronauts. Compare the following actual conversations:

Houston Mission Control (after discovering a malfunction in the Apollo-12 mission caused by the digital uplink assembly, DUA):

We think we've figured it out.
Your DUA was off.

American astronaut: What's a DUA?

Soviet Flight Control Center: We have an addition to the format: on 19 June the flight engineer is to conduct M10-4M, FG 1/3.

Klimuk: What, what?

FCC: FG 1/3.

K: What's that?

FCC: Phlebogram [in Russian *FleboGramma*].

K: Ah, phlebogram! I understand.

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FOOTBALL & CRYPTOLOGY

P1/R51 Cadre

Now that we are in the middle of another National Football League season, I believe the time has come to consider ways to improve the game. One of the most painful things to watch is mistakes due to incomplete knowledge by the players, e. g., the receiver hit in the back by a pass, the linebacker who does not see the blocker coming at him from the side, or the guard missing the blitz. How often coaches must have wished they could have told a player to look in another direction at the critical moment.

Modern technology does offer a way to correct this state of affairs. What the NFL needs is to allow low-power radio transmitter to enable coaches to speak directly to their players (who would have miniaturized receivers and earphones in their helmets)¹. Then the coach would be free to say, "Get that (expletive deleted) man to the (expletive deleted) left, you (expletive deleted) meathead!" If nothing else, it should make the coaches feel a lot better.

Of course, opposing coaches would probably try to listen in. But if the technique were only used in the simple way described above, that would not be of much value (not enough time to react). However, I think coaches would find the temptation irresistible to call plays in this way. Naturally, in this case a SIGINT effort would be of tremendous value to the opposition. Therefore one would have to use encrypted speech. It is possible to envision this happening in several stages. . .

1976 season

The New York Giants win the NFC title (after having gone 3-10-1 in 1975) by employing a speech privacy system to enable the coaches to talk directly to their players. As used by the Giants there are 11 speech coaches assigned to each unit, one coach to each player. In addition the head coach can override any line. Unfortunately, in the league championship game, Craig Morton gets tired of taking orders from

¹I understand this idea was actually tried some years ago, but abandoned for various technical reasons.



P.L. 86-36

his coach. He disconnects his receiver. The Giants lose 63-13 to the Oakland Raiders.

1979 season

By this time most teams have installed a system similar to the Giants'. In addition many teams have hired mathematicians to design new encryption devices and to break those of other teams. The Kansas City Chiefs have decided that there is no longer any need to hold huddles or even to let players talk at all. Each player is entirely encased in a combination of medieval armor and space suit. In this way each player can breathe pure oxygen. Besides speaking to his players the coaches can also activate switches to give each a squirt of Gatorade or a shot of adrenalin. After each play the Chiefs line up without huddling and the coach tells them what to do. The effect on the other teams is devastating. Without a chance to regroup (or breathe oxygen) they quickly collapse. The Chiefs win every game this year by at least 40 points.

1984 season

By this time the cryptologic aspects of football have become at least as important as the play itself. Every team has many mathematicians, engineers, and programmers designing and breaking speech systems. In many cases their salaries are greater than those of the players. One of the latest technical breakthroughs has been the emplacement of brain probes (which are in turn connected to the receiver in the helmet). In this way the coach can send directly to the brain. A whole new field of cryptoneurology is born. Using this latest technique, the L. A. Rams are able to play gorillas at a number of positions.

1999 season

By this time the NFL has concluded that the players are pretty uninteresting. In fact, live players spoil the game because of their unpredictable variance. All teams use robots which are guaranteed to be uniform with respect to position. The whole point of the game is cryptanalysis. The sports pages of the papers are full of discussions of such things as which team has managed to break the Detroit Lions' defensive system. Every year a big draft is held to select mathematicians and engineers. One man is reported to be under contract for \$32 million over 7 years. Hmmm. . . .

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NSA-crostic No. 2

The quotation on the next page was taken from a published work of an NSA-er. The first letters of the WORDS spell out the author's name and the title of the work.

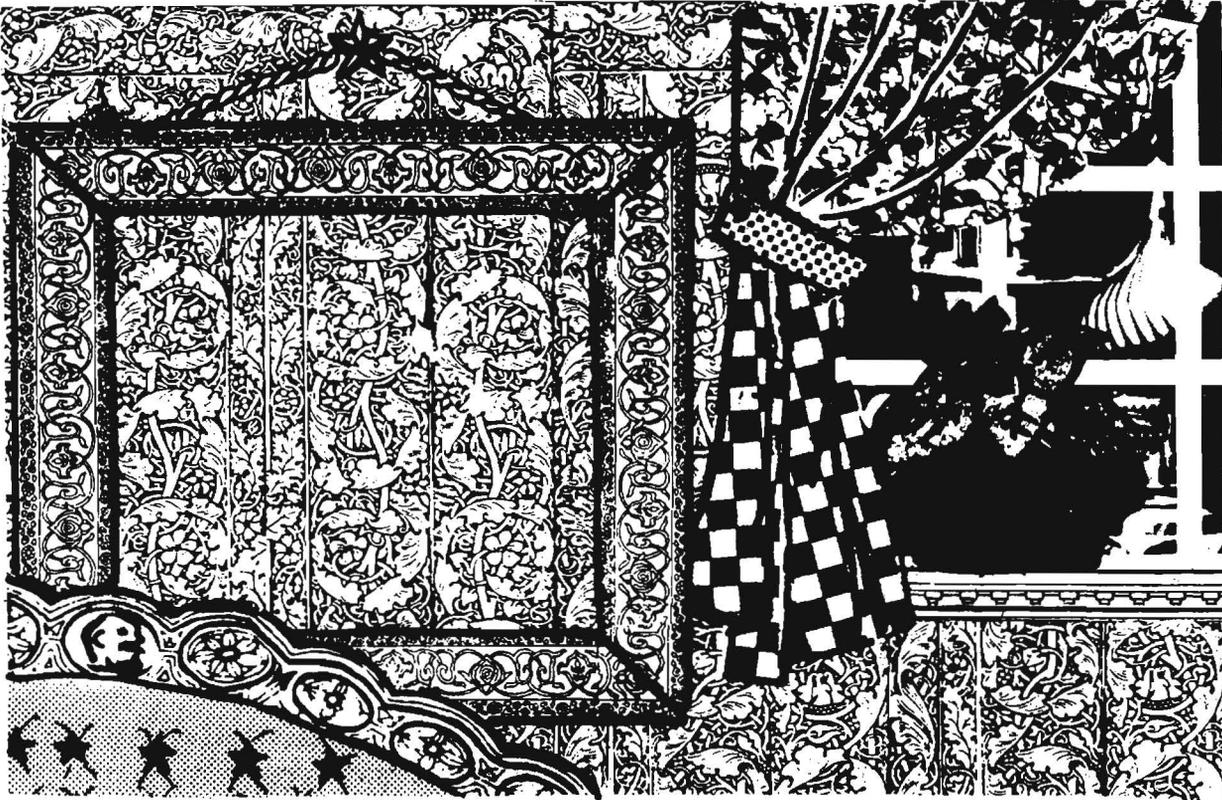
DEFINITIONS

WORDS

- | | |
|--|--|
| A. Mohammed's birthplace | <u>217</u> <u>78</u> <u>118</u> <u>31</u> <u>162</u> |
| B. "Sour herb of grace" (Shakespeare, <i>Richard II</i>) | <u>111</u> <u>135</u> <u>54</u> |
| C. Conceive | <u>165</u> <u>22</u> <u>143</u> <u>173</u> <u>97</u> <u>45</u> |
| D. He said "Cogito, ergo sum" (2 wds) | <u>138</u> <u>1</u> <u>67</u> <u>119</u> <u>220</u> <u>79</u> <u>151</u> <u>100</u> <u>188</u> <u>35</u> <u>131</u> <u>203</u> <u>158</u> |
| E. What Sheldon's mother said when he tried to push ahead of Sister Mary Margaret as she was signing the Mount Vernon guestbook (6 wds, suggested by song title) | <u>25</u> <u>105</u> <u>72</u> <u>197</u> <u>154</u> <u>34</u> <u>93</u> <u>20</u> <u>183</u> <u>98</u> <u>89</u> <u>117</u> <u>205</u>
<u>63</u> <u>163</u> <u>194</u> <u>23</u> <u>219</u> <u>125</u> <u>174</u> <u>65</u> <u>122</u> <u>191</u> <u>166</u> |
| | <u>5</u> |
| F. High flyer | <u>61</u> <u>129</u> <u>90</u> <u>172</u> <u>157</u> <u>80</u> |
| G. "He always takes his girl friends to Alaska -- that's how he gets to ----" | <u>55</u> <u>74</u> <u>112</u> <u>139</u> |
| H. Mother of Epaphus by Zeus | <u>218</u> <u>56</u> |
| I. Historical antecedent (Waterloo, 1815) of Word Y (3 wds) | <u>44</u> <u>212</u> <u>164</u> <u>201</u> <u>3</u> <u>91</u> <u>28</u> <u>37</u> <u>147</u> <u>202</u> <u>152</u> <u>17</u> <u>47</u> |
| | <u>101</u> |
| J. Praise extravagantly | <u>170</u> <u>180</u> <u>75</u> <u>10</u> |
| K. French composer (<i>Tales of Hoffmann</i>) | <u>148</u> <u>140</u> <u>109</u> <u>21</u> <u>29</u> <u>176</u> <u>124</u> <u>57</u> <u>77</u> |
| L. Artistic style early in the reign (1715-74) of Louis XV | <u>142</u> <u>160</u> <u>58</u> <u>149</u> <u>84</u> <u>110</u> |
| M. Civil wrong independent of a contract | <u>76</u> <u>216</u> <u>128</u> <u>8</u> |
| N. King of ancient Persia, d. 425 B.C. | <u>30</u> <u>50</u> <u>121</u> <u>113</u> <u>12</u> <u>66</u> <u>133</u> <u>187</u> <u>71</u> <u>73</u> |
| O. Element, atomic number 10 (symbol) | <u>83</u> <u>36</u> |
| P. Language for which Sequoyah invented a syllabary | <u>27</u> <u>184</u> <u>141</u> <u>14</u> <u>43</u> <u>150</u> <u>53</u> <u>99</u> |
| Q. Psyche's boy friend | <u>156</u> <u>104</u> <u>40</u> <u>86</u> |
| R. LummoX | <u>210</u> <u>38</u> <u>161</u> |
| S. Some at least | <u>204</u> <u>26</u> <u>198</u> |
| T. Mechanical device (Karel Capek, <i>R.U.R.</i> , 1921) | <u>123</u> <u>49</u> <u>6</u> <u>199</u> <u>68</u> |
| U. Vase-shaped pitcher | <u>159</u> <u>19</u> <u>168</u> <u>153</u> |
| V. Discharge completely | <u>87</u> <u>178</u> <u>32</u> <u>46</u> <u>107</u> <u>13</u> |

- W. Festive get-together
 $\overline{169} \overline{62}$
- X. American composer (*Third Symphony*, Pulitzer Prize 1947)
 $\overline{115} \overline{2} \overline{146} \overline{81}$
- Y. Did McAuliffe *really* say this at Bastogne?
 $\overline{102} \overline{33} \overline{95} \overline{206}$
- Z⁰. Garden near the foot of the Mount of Olives
 $\overline{195} \overline{51} \overline{167} \overline{132} \overline{60} \overline{186} \overline{70} \overline{15} \overline{108} \overline{175}$
- Z¹. Charitable
 $\overline{185} \overline{106} \overline{177} \overline{11} \overline{213} \overline{96} \overline{208} \overline{39} \overline{144} \overline{92} \overline{200} \overline{192}$
- Z². Lower
 $\overline{41} \overline{126} \overline{209} \overline{155} \overline{82} \overline{193}$
- Z³. Old Man of the Mountain (3 wds)
 $\overline{136} \overline{4} \overline{85} \overline{59} \overline{215} \overline{181} \overline{103} \overline{18} \overline{120} \overline{214} \overline{48} \overline{179} \overline{189}$
 $\overline{24}$
- Z⁴. Sign of the Zodiac
 $\overline{94} \overline{207} \overline{134}$
- Z⁵. Yen
 $\overline{7} \overline{114} \overline{145} \overline{196}$
- Z⁶. Russian composer (*The Golden Age, Lady Macbeth of Mtsensk*)
 $\overline{42} \overline{130} \overline{9} \overline{52} \overline{190} \overline{127} \overline{16} \overline{116} \overline{88} \overline{69} \overline{211} \overline{171}$
- Z⁷. U. S. government agency (abbrev)
 $\overline{137} \overline{182} \overline{64}$

1-D	2-X	3-I	4-Z ³	5-E		6-T	7-Z ⁵	8-M		9-Z ⁶	10-J		11-Z ¹	12-N	13-V
14-P	15-Z ⁰		16-Z ⁶	17-I	18-Z ³	19-U	20-E	21-K	22-C	23-E	24-Z ³		25-E	26-S	
27-P	28-I	29-K		30-N	31-A	32-V	33-Y	34-E	35-D	36-O		37-I	38-R	39-Z ¹	
40-Q	41-Z ²		42-Z ⁶	43-P	44-I	45-C		46-V	47-I	48-Z ³	49-T	50-N	51-Z ⁰	52-Z ⁶	53-P
54-B	55-G		56-H	57-K	58-L	59-Z ³	60-Z ⁰	61-F	62-W	63-E		64-Z ⁷	65-E	66-N	67-D
	68-T	69-Z ⁶	70-Z ⁰	71-N		72-E	73-N		74-G	75-J		76-M	77-K	78-A	
79-D	80-F	81-X	82-Z ²	83-O	84-L	85-Z ³		86-Q	87-V	88-Z ⁶	89-E		90-F		91-I
92-Z ¹	93-E	94-Z ⁴		95-Y	96-Z ¹		97-C	98-E	99-P		100-D	101-I	102-Y	103-Z ³	104-Q
105-E	106-Z ¹		107-V	108-Z ⁰	109-K	110-L	111-B	112-G	113-N	114-Z ⁵	115-X	116-Z ⁶	117-E		118-A
119-D	120-Z ³	121-N	122-E	123-T		124-K		125-E	126-Z ²	127-Z ⁶	128-M	129-F	130-Z ⁶		131-D
132-Z ⁰	133-N	134-Z ⁴	135-B	136-Z ³	137-Z ⁷		138-D	139-G	140-K	141-P	142-L	143-C	144-Z ¹	145-Z ⁵	146-X
	147-I	148-K	149-L	150-P	151-D		152-I	153-U		154-E	155-Z ²	156-Q		157-F	158-D
159-U		160-L	161-R		162-A		163-E	164-I	165-C	166-E	167-Z ⁰	168-U	169-W		170-J
171-Z ⁶	172-F	173-C	174-E	175-Z ⁰		176-K	177-Z ¹	178-V	179-Z ³	180-J	181-Z ³	182-Z ⁷		183-E	184-P
185-Z ¹		186-Z ⁰	187-N	188-D	189-Z ³	190-Z ⁶	191-E	192-Z ¹		193-Z ²	194-E	195-Z ⁰	196-Z ⁵	197-E	
198-S	199-T	200-Z ¹	201-I		202-I	203-D	204-S	205-E	206-Y	207-Z ⁴	208-Z ¹		209-Z ⁴	210-R	
211-Z ⁶	212-I	213-Z ¹	214-Z ³		215-Z ³	216-M		217-A	218-H	219-E	220-D				A.J.S.

~~TOP SECRET UMBRA~~

LENIN AND STATE PRIZES: NOW YOU SEE THEM -- NOW YOU DON'T!

C531

P.L. 86-36

Orders, medals, and prizes play an important role in the economic and social life of the Soviet Union. They provide an extra incentive for people to strive for improvement, by appealing to their natural desire for recognition and approval and, in the case of Lenin and State Prizes¹, by rewarding them financially.

In the civilian sector, the most prestigious of these are the Hero of Socialist Labor, Order of Lenin, State Prize, and Lenin Prize. They form the bottom line of official biographic sketches and obituaries -- the measure of a person's success as a productive member of

¹Unless otherwise stated, references to State Prizes in this article do not include the former Stalin Prizes, which were discontinued after 1954 and retroactively redesignated State Prizes. State Prizes awarded by individual republics of the USSR (as opposed to national-level USSR State Prizes) have also been excluded from consideration in this article because they are less significant and are of more recent origin.

society, and a great source of personal pride. To students of Soviet affairs, they can be a measure and source of other things as well.

While all these honors are highly prized by Soviet citizens, the Lenin and State Prizes are the most difficult to obtain. The Order of Lenin and Hero of Socialist Labor may be awarded for a wide variety of reasons unrelated to any single achievement (e.g., on the occasion of one's fiftieth birthday and in appreciation of years of consistently outstanding performance), but the Lenin and State Prizes are given only for very specific contributions of national significance, such as the design and introduction into series production of a new type of aircraft. Consequently, recipients of the Lenin and State Prizes, more than any other group, may be considered the elite corps of the "technocrats."

Just what *are* these prizes? According to the new (third) edition of the *Bol'shaya Sovetskaya Ehntsiklopediya* (Large Soviet Encyclopedia) (BSEh), the Lenin Prize is "one of the highest forms of rewarding citizens for the most outstanding achievements in the field of

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science and technology, literature, art and architecture. . . Re-established in 1957². . . 30 Lenin Prizes (including 25 in science and technology and 5 in literature, art, and architecture) of 10,000 rubles each are awarded once every 2 years. . . [Announcements of] awards are published on the anniversary of the birth of V. I. Lenin. Persons receiving the Lenin Prize are given the title 'Lenin Prize Laureate,' a certificate, an honorary pin, and an identification card. The Lenin Prize may not be awarded more than once to an individual."

The same edition of BSEh states that "USSR State Prizes are a form of rewarding citizens for outstanding achievements in the field of science and technology, literature, and art. . . They are awarded for scientific research making a major contribution to the development of the nation's science; for work creating and introducing the most progressive materials, machines, and machinery into the national economy. . . A USSR State Prize Laureate may be awarded a USSR State Prize more than once, but not within 5 years of any previous award. Established in 1966. . . as many as 50 awards in the field of science and technology and as many as 10 for literature and art are made yearly on the anniversary of the Great October Socialist Revolution. Each prize is 5000 rubles. . . Persons receiving the USSR State Prize are given the title 'USSR State Prize Laureate,' a certificate, and an honorary pin indicating the year of the award. . ."

A prize may go to an individual, as sometimes happens in the field of pure science, for the development of basic theories. More often, however, the prize is shared by a number of persons throughout the USSR, especially when the award is for the development and production of complex and sophisticated equipment. On the average, prizes are shared by seven or eight persons. Prizes are announced in *Pravda* and *Izvestiya*, with an indication of the recipient's name, job title, place of employment, and reason for the award.

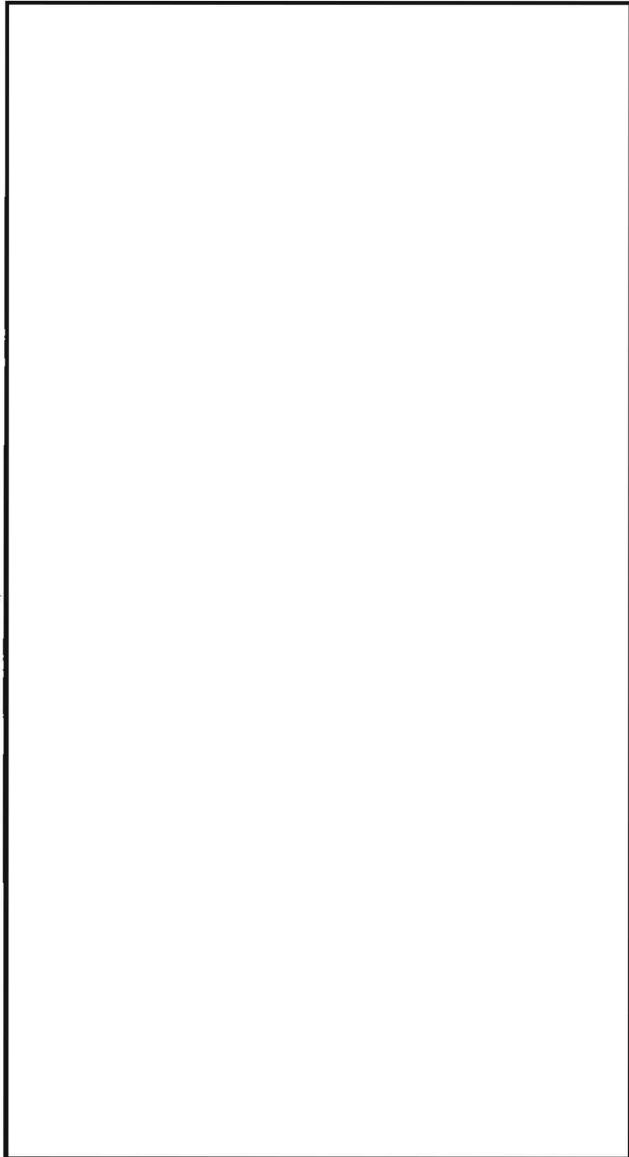
According to published accounts, in the fields of science and technology since 1970, 226 people have shared 32 Lenin Prizes, while 1,057 people have shared 126 State Prizes. But according to BSEh, there should have been 75 Lenin Prizes, and 250 State Prizes could have been awarded. Where have all the prizes gone?

[Redacted]

²Originally established in 1925, Lenin Prizes were discontinued after 1934. From 1957 until 1968, Lenin Prizes were awarded yearly.

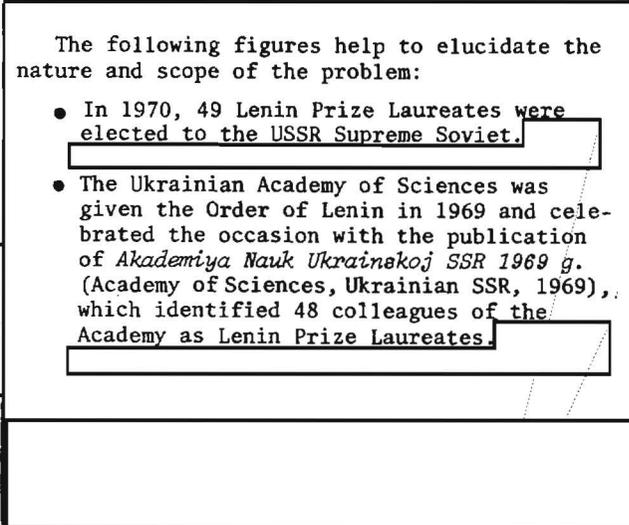
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The following figures help to elucidate the nature and scope of the problem:

- In 1970, 49 Lenin Prize Laureates were elected to the USSR Supreme Soviet. [Redacted]
- The Ukrainian Academy of Sciences was given the Order of Lenin in 1969 and celebrated the occasion with the publication of *Akademiya Nauk Ukrainskoj SSR 1969 g.* (Academy of Sciences, Ukrainian SSR, 1969), which identified 48 colleagues of the Academy as Lenin Prize Laureates. [Redacted]

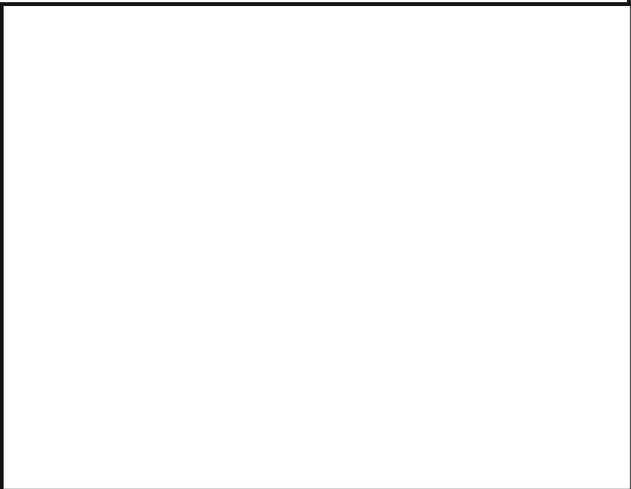
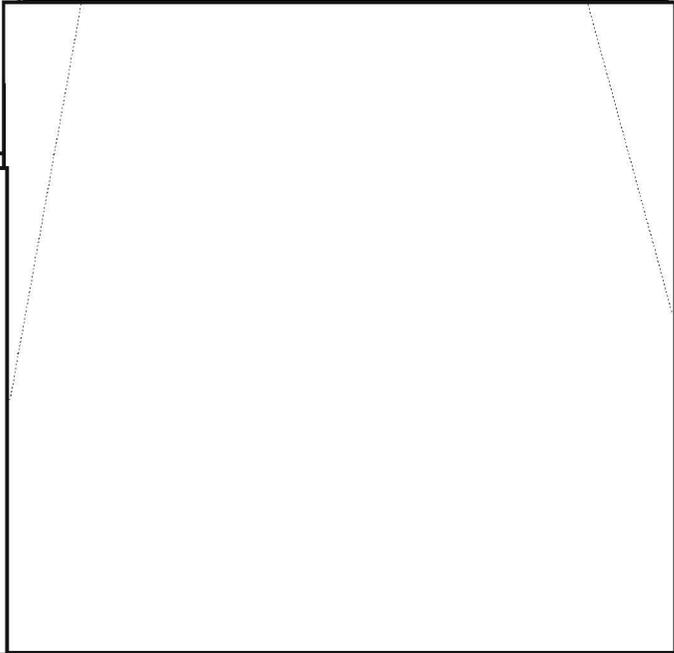
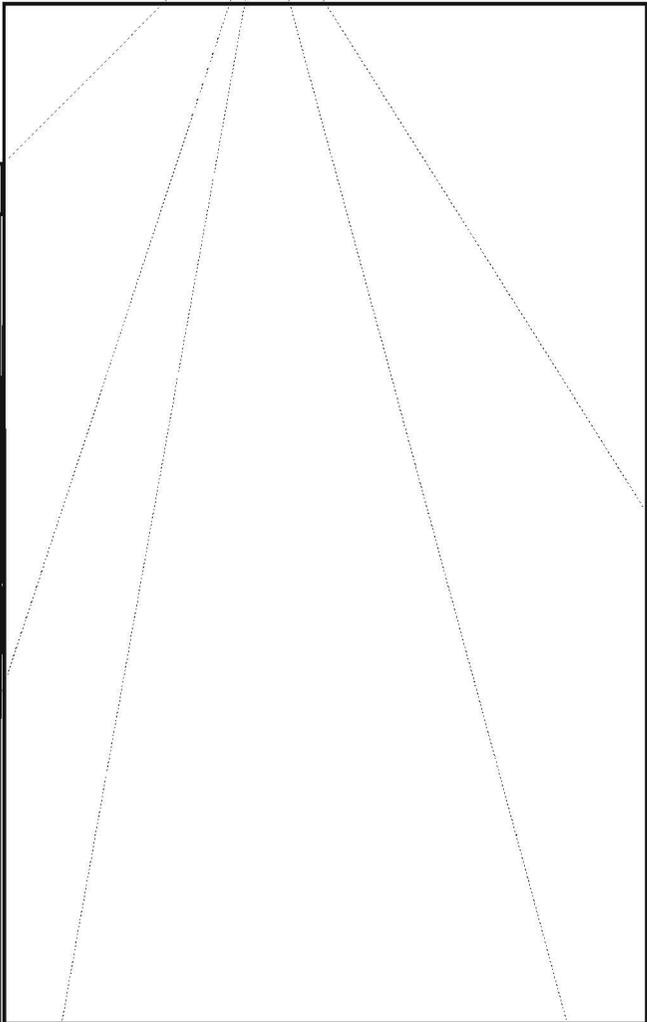
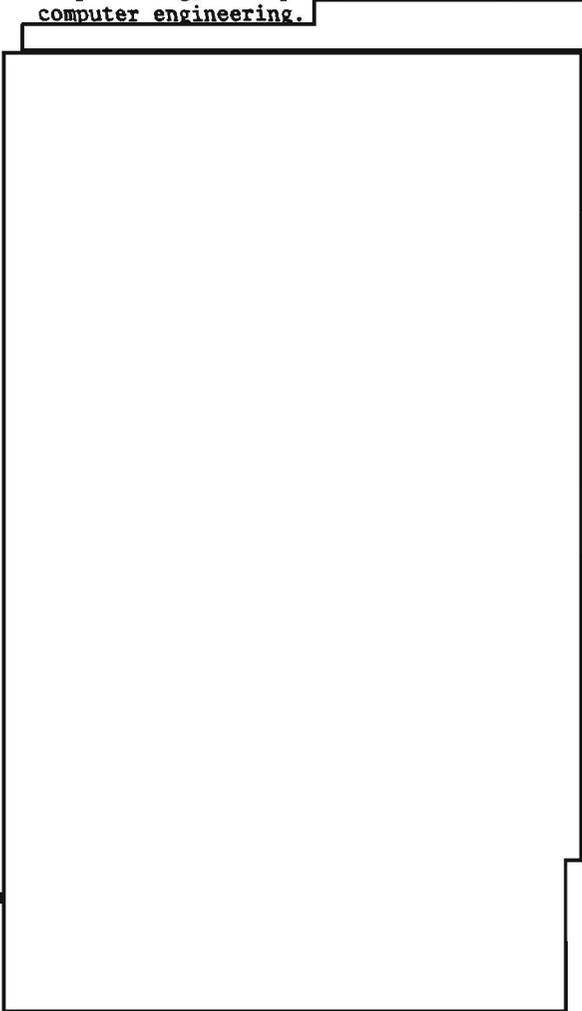


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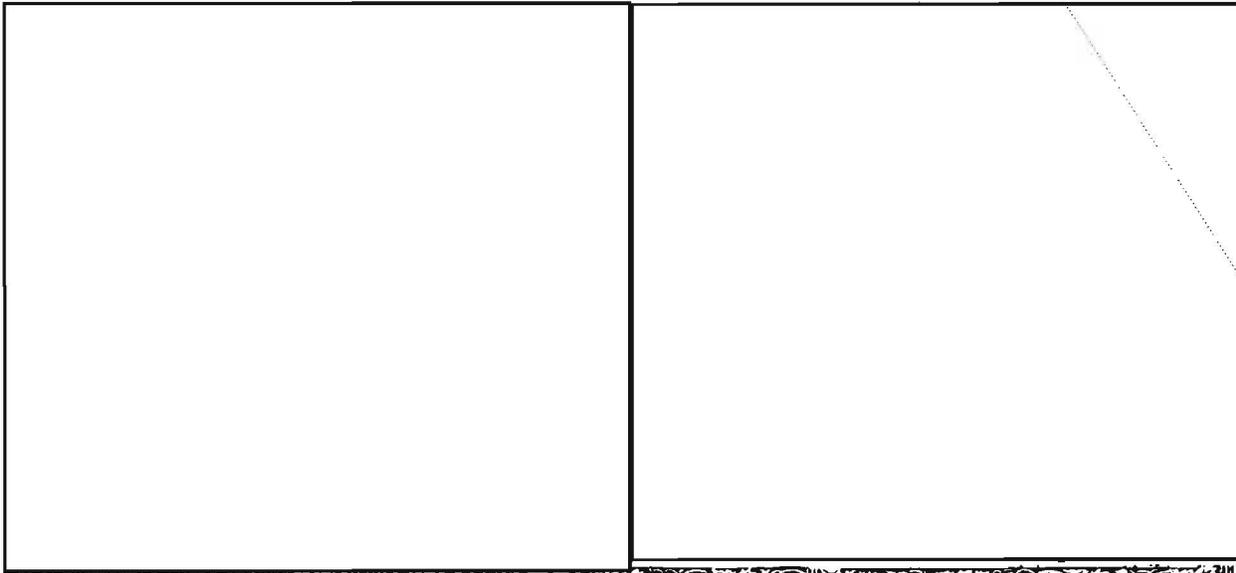
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- From 1968 to 1972, 12 Lenin and State Prize Laureates were elected to the Department of Mechanics and Control Processes, USSR Academy of Sciences, which is engaged in many projects in the areas of shipbuilding, aerospace, electronics, and computer engineering.



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Q:
A:

The following are a few of the questions most frequently asked of the editor. The answers are supposed to be simple but complete. Other frequently asked questions, including some that require more detailed discussion, will appear in future issues. These other questions include, "Who can contribute articles to CRYPTOLOG?", "What topics are suitable for discussion in CRYPTOLOG?", "How much editing does the editor do to articles submitted?", "Why does the editor have to do *any* editing?", "Are controversial articles acceptable?", etc.

How does CRYPTOLOG differ from other Agency publications such as the NSA Technical Journal, Cryptologic Spectrum, and the NSA Newsletter?

The Newsletter is, of course, unclassified. The Technical Journal, Spectrum, and CRYPTOLOG can print classified materials (Technical Journal and CRYPTOLOG up to Top Secret Codeword level; Spectrum up to Secret Codeword level). Technical Journal and Spectrum are professionally-printed publications that appear 4 times a year; CRYPTOLOG is a more casually produced (pasted-up typewritten copy) technical exchange paper that appears every month. With respect to the content of the articles printed, the three classified publications are directed at approximately the same NSA readers, but CRYPTOLOG is perhaps the most time-conscious and has perhaps the least formal level of presentation, since it is intended for the easy exchange of ideas among technicians of various specialties.

Why don't you print all the unclassified stuff on both sides of the same page, so that it can be removed easily without a risk of a breach of security?

CRYPTOLOG is deliberately left unstructured. It contains no "TA Section," "CA Section," "Language Section," etc. The intention is to make every reader, whatever his specialty, want to read every article in every issue (are we hitting the mark?). It often happens that

articles of various lengths and with various security classifications leave variously-sized holes to fill in. Sometimes it is possible to find "filler" material with the same classification as the article on the rest of the page, and also on the back of the page. But usually this is impossible. Therefore, we put an indication of the security classification on everything printed in CRYPTOLOG. Any reader can reproduce any article or "filler" and be sure of the classification. Making a Xerox copy of an unclassified page is safer than tearing out the page and worrying about what's on the reverse side.

Who can subscribe to CRYPTOLOG?

Any NSAer, member of a resident user organization, or Second Party reader. The Department of Defense authorizes publication of CRYPTOLOG for distribution within NSA/CSS and Second Party agencies. The publication can be read by anyone with a Top Secret Codeword clearance, but we are not authorized to print copies for general distribution to other U.S. government agencies, including cooperating or customer agencies of NSA/CSS.

Assuming that I'm authorized to get it, how do I get a subscription to CRYPTOLOG?

Matthew 7:7. (x5642s; or P1, CRYPTOLOG.)

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LEO IN OCTOBER

A. I. Murphy, V13

Ed. note: At the request of the author, the following reaction to the October 1975 issue is being published in the form in which it was submitted. Readers' comments are invited.

Some years ago, a Hollywood movie told the story of how people and newspapers made a circus of the unhappy situation of a coal miner trapped in a cave-in. The story was ballyhooed to the point where there was widespread betting on when the man would be brought up, the noises from the local brass band and improvised concession stands competed with that from the rescue operation itself, and a new song was heard across the land: "Oh Leo, We're Coming Closer."

Ironically, as the movie went, the event ultimately came back to haunt everyone who for his own purposes sought to get as much mileage as he could out of it. The drilling effort was badly planned and executed. Leo suffocated. And the people were left with bitter loathings of their own behavior and of the insensitive tactics of the newspaper reporters.

Rightly or wrongly, fairly or unfairly, accurately or inaccurately -- the October issue of CRYPTOLOG with its theme on lessons learned from the "Vietnam Experience" is what precipitated recall of the Leo story. It ("October"), as expected, also triggered a whole range of long thoughts about the Vietnam tragedy in general: its place in historical perspective, the awesome gains the Communist camp achieved by it (Pueblo was a technological coup; Vietnam, a monstrous extortion of human spirit, and an ideological triumph); and the lingering concern about the resolve in the free world, particularly in the U.S., to meet the next test which, if we are disposed to listen to Solzhenitsyn, may be catastrophic and soon.

With that as openers, this taxpayer-cum-SIGINTer has already made his point. Rather bluntly, true. But he had made it; namely, that "October" was unfortunate for its bad timing and poor taste. All things considered, except for [redacted] contribution, it gave a carnival flavor coated with pompous technical professionalism to a subject that should not have been treated that way. At least not at

this time when we are still caught up in the emotional bends of its aftermath. The intellectual tip-toeing that imaged through the lessons allegedly learned was also something less than admirable.

At that, he could rest his case feeling that he justifiably exercised his right to voice his opinion in this, a vehicle designed for such things.

But what about those long thoughts, the convictions formulated before, during, and after the tragedy, and the basic reasons for this lashing out. Would that there were enough time and space.

It is not always easy to discuss Vietnam in a totally dispassionate way. To remain silent, however, where one disagrees is an assent to what was said. The recourse he has chosen is to submit in gist a few of the many notes he has recorded on our SIGINT involvement in Vietnam, and about the way "October" came across in that context.

There is a time to laugh and there is a time to cry. Now is the time for neither. The appearance of entertaining writing about the Vietnam experience in sedate CRYPTOLOG in October 1975 is just as unpalatable as the shocking breach of the NSA mission in vacuous PENTHOUSE. What we should be doing now is a post-mortem, a realistic, penetrating post-mortem (what an apt term that is here) covering all aspects of the SIGINT story in Vietnam. Then start looking ahead.

It is just as unrealistic to try to prolong the euphoria of self-satisfaction over our SIGINT accomplishments in Vietnam (there is no question but what some of our finest work was done there), as it is to wallow in the bitterness of having watched 17½ million people go under, despite those efforts. The

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character of "Vietnam SIGINT memoirs" is what one finds objectionable. It is too soon for that sort of thing. Better that "October's" input had been given over to the NSA historian, rather than to hear the cry "Leo is Dead, Long Live His Biographers."

The most unfortunate revelation of "October," as reflected in the concluding paragraph of "The Danang Processing Center," was that a very basic lesson was not learned. It said:

Soon after the U.S. military withdrew from Vietnam and the DGTS had assumed complete responsibility for the collection, analysis, and reporting of SIGINT, it became apparent their state-of-the-art would not advance as rapidly as we wanted. The DGTS simply would not be pushed faster than they wanted to go. I feel there management and logistical problems and their lack of a true desire to learn the production and use of SIGINT contributed to the overall failure of the independent ARVN SIGINT effort.

The author's conclusions are respected as the expression of his point of view. But, therein lies the lesson, as this writer sees it. Could it not have been that the South Vietnamese were simply incapable of going at our speed, and/or could it not have been that they deliberately dragged their feet having the vision of our departure as the beginning of their doom.

The Vietnamization Improvement and Modernization (VIM) Program was a noble, albeit a late-starting undertaking. Although much was achieved by it, we all knew from the beginning that it was fraught with uncertainties and risks: the ARVN will to fight on, their ability to absorb the thrust of our updating efforts, and our own patience in seeing it through. We pressed on anyway. Hurriedly. Hoping that it would all crystallize on time.

There again, in the view of this writer, is where any moves to soothe the current compulsion to catalog lessons learned should begin. The mere fact that the program was called "Vietnamization," let alone the topic of acceleration, must have had an immediate demoralizing affect on our counterparts. Perhaps at the time we were too long on expertise and somewhat short on compassion. Hopefully, the word-makers have had their day, and we will not have to cope with the indelicacies of any more "izations,"

[Redacted]

One is convinced that in the process of imparting our knowledge to the DGTS, often to the point of causing them to gag, we let our sensitivity slip away, little by little. A considerable amount can be, and undoubtedly will be written about our moving ahead to new objectives in the VIM program without adequately resolving previous steps.

The memory of technical untidiness that developed as the result of ride-herd and one-upmanship methods against them and between ourselves, is still vivid.

[Redacted]

One has considerable respect for [Redacted] and his candid talk in the Friedman Auditorium on how it was from his vantage point in those final days, and his wariness of lessons-learned seminars. In line with the point being made herein, however, there is some persuasion that his excellent presentation in "October" was enough.

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We can readily agree with him about the dedication and courage of the U.S. SIGINTers in Vietnam. Being on the scene, and working directly with our counterparts, made it easy to respect them. Maybe that's why during the nightmare of the final hours, TAer [Redacted] EO 1.4.(d) L. 86-36 having rowed out to an American ship at anchor, reportedly saw fit to shout the title of this agency, and the names of specific NSAers he had worked with over the years. As far as we can tell, he was picked up where evidently others were not. Call it resourcefulness, if you want. The writer, who hopes his name was included in that plea, prefers to believe that this was simply another reflection of good work done in an area where lessons were learned well in advance.

We should be preoccupied with things beyond "mileage," and self-satisfaction over past achievements. Why is it that our product had such a low credibility in the eyes of the Ambassador in Saigon? Why did he keep backing a loser in "communications deception"?

[Redacted]

A lot of good it's going to do anybody, after the cave-in happens, to be able to say - we told you so!

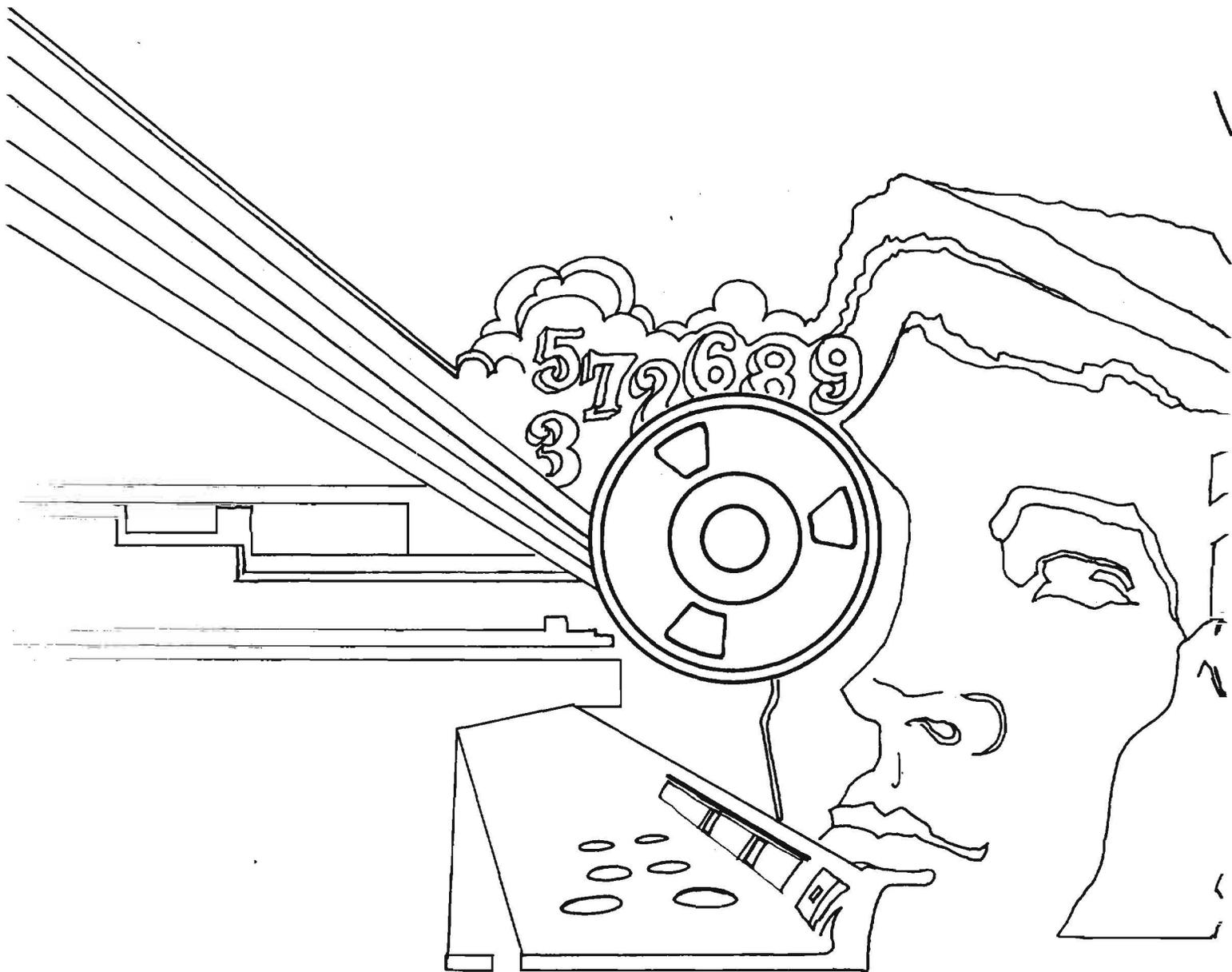
The refrains of "Oh Leo. . ." from the Kremlin are loud and clear these days. The only difference is, there is no indication of any bad planning and execution on their part, or that the time is right for their behavior to be coming back to haunt them.

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