### APPENDIX

### INTRODUCTION

The Russian originals of the lll simulated MT texts given below have been published in our previous comprehensive report.\* The predicted translations contain a number of editorial symbols intended to be supplied by the automatic MT system together with the translation in order to aid the reader in choosing the proper alternatives demanded by the context. These symbols and their significance are discussed and exemplified below. The reader will notice in the chart and in the simulated output text that also the space between free forms, in fact the number of spaces, is utilized in this symbolization.

In the abstract representation preceding each of the exemplifications given in the chart, uninterrupted sequences of the letter "x" stand for the letters of semantic units of the target language. This abstract representation is used only to emphasize the presence of the special editorial symbols.

- a) Symbols of Special Significance
- 1. XXXX-XXXXX, XX-XXXXX, XXXX-XXXXXXX-XXXXXXX
- 3. XXXX-XXXXX--XXXX/XXXXXXX/XXXXXXXX
- 4. (xx/xxxx/xx)xxx-xxxx xxxxxxx/xx-(xx)xxxxxxx, (xx/xxx)xxxxxxx-xxxx(xxxx), (xx)(xx/xxx)xxxxxxx(x).
- 5. (XX)XXXXXXXXXX//XXXXXXXX (XX/XXX)XXXXX(XX)//XXXXXX
- 6. xxx(xxx) \*xxxxx-xxxxxxx (xx)xxxx \*(xx)xxxx-xxxxxx

The hyphen in this environment separates the free-form constituents of a single target equivalent.

Examples: what-is-more, in-favor, edge-planing-machines

The <u>single slash</u> separates the alternative choices in a target "string", one of which must be selected on the basis of the context.

Examples: leads/conducts/raises agitated/indignant

The <u>hyphen</u> in these environments indicates bound target equivalents, or right or left bound alternatives in target "strings".

Examples: anti-, tachy-, -like/visible/important (See The Role of Space No. 3 for examples of an output sequence representing compounds).

Alternatives within parentheses are to be selected or rejected depending on context; if selected, they are to be read with any material directly preceding or following the parentheses. (But see point No. 5) Grammatical alternatives within parentheses preceding and following a target equivalent are mutually exclusive. The one appropriate to the context is chosen, but even this one may be excluded by the larger context.

Examples: (by/with/as)the-same, changes/is-(ex)changed, (to/for)working-over(time), (of)(to/for)surface(s).

Double slash signifies that the material within parentheses is to be read with the suggestions found only before or after the double slash depending on the location of the parentheses.

Examples: (of)dissolving//solutions (1s/are)quick(er)//rather

An asterisk indicates that the immediately preceding target "string" may be automatically eliminated from consideration.

Examples: big(ger) \*great-distance (of)bolt \*(of)bolt-joints

<sup>\*</sup>The Selected Russian Text Passages, LINGUISTIC AND ENGINEERING STUDIES IN AUTOMATIC LANGUAGE TRANSLATION OF SCIENTIFIC RUSSIAN INTO ENGLISH, Linguistic Analysis, Appendix III, pp. 1-170.

7. xx/xx/xx/xxx/xx/xxxx=-xxxx/xxxxx<sub>3</sub> \*XXXXXXXXXXX

Two hyphens not separated by any space join two separate target "strings" which are to be considered as one target "string" to be eliminated if the next target equivalent is preceded by an asterisk.

Example: on/in/at/for/by/with--iron/ferric, \*on-railroads

8. (xx)xxxxx/xxxxxxx/xxx/--xxx/xxx/---

Three hyphens after a slash refer the reader to the section of this manual containing the reference list of unusual or rare target alternatives. These little used alternatives will be found in the manual under the whole entry as found in the output text.

Examples: (to)carry/perform/lay/--but/and/--

9.  $\begin{array}{ll} \text{xxxxxxx/xxxxxxxxxx}_{83}/\text{xxxxxxxx}_{91} \\ \text{(xx/xxxx/xx)xxxxxx/xxxxxxx}_{5}/\text{xxxxxxx}_{97} \end{array}$ 

The subscript numbers to the right of certain target alternatives refer to fields and subfields of specialization on the Synoptic Table of Fields of Science found in Section 12.5.

Examples: variable/alternating<sub>83</sub>/reversible<sub>91</sub>
(by/with/as)defeats/affections<sub>5</sub>/strikes<sub>97</sub>

# (b) The Role of Space Between Target Equivalents

XXXXXXXXX(XX) 1. xxx-xxxx 

2. xx xxxxxxx/xxxxxxxx-xx/xxxxxxxx<sub>91</sub> (xx/xxx)xxxx xxxxxxxx/xxxxx/xxxxx(xx)

3. xxxxx-XXXXXXXXXXX. xxxxxx xx

4. XXXXXX XXXXX Xxxx xxxxx

5. xxxx - xxx xxxxxxx - -xxxxxx Three spaces separate individual target "strings". Examples: the-most (of)important

such (of)conditions
One space divides one target "string" into two groups and indicates that the groups so separated are to be read together after the proper choice from alternatives separated by a slash has been made.

Examples: is included/switched-on/engaged 91 (is/are)more frequent/thick/rapid(ly)

Hyphen and two spaces separate the target equivalents of the members of a compound where the first member is a prefix, i.e., occurs only as a bound form.

Examples: supra- clavicular, ept- gastric.

Two spaces separate the target equivalents of the members of a compound whose first member occurs both bound and free.

Examples: Diesel motor Watt motor

Two spaces, a hyphen and two more spaces separate the constituents of a hyphenated compound if the first

element is always bound. Examples: dark - red dorso- ~ ventral

## APPENDIX

# THE SIMULATED MACHINE TRANSLATIONS

- 1 -- ОСНОВЫ МЕТРОЛОГИИ, рр. 325-6
- 1. 50. REALIZATION (of)STANDARDS.
- 2. CONSTRUCTION/DESIGN (of)STANDARD, (of)(to/for)(by/with/as)HIS/ITS/HIM/IT PHYSICAL \*PHYSICAL-PROPERTIES AND/EVEN/TOO--- METHOD (of)REALIZATION(S) ARE DEFINED/DETERMINED/ASSIGNED (by/with/as)NATURE (of)MAGNITUDE/QUANTITY(S), UNIT/ONE (of)(to/for)(by/with/as)WHICH IS-REPRODUCED, AND/EVEN/TOO--- (by/with/as)STATE/FORTUNE (of)(to/for)(by/with/as)MEASURING/-DIMENSIONAL (of)-TECHNICS/PRACTICE/TECHNOLOGISTS IN/TO/AT/ON/OF/LIKE (of)(to/for)(by/with/as)GIVEN (of)(to/for)-AREA/OBLAST(S) (of)MEASUREMENTS.
- 3. ONLY (of) DEFINITION/DETERMINATION/ATTRIBUTE 62 (S) (of) INDEPENDENT (of) UNITS/ONES (THEY) GIVE/ALLOW CERTAIN/SOME PROGRAM (of) ACT (ION) S/EFFECTS/OPERATIONS FOR (of) REALIZATION(S) (of) STANDARDS, IN-AS-MUCH-AS THESE (of) DEFINITION/DETERMINATION/ATTRIBUTE 62 (S) (THEY) CONTAIN/MAINTAIN INDICATION/- INSTRUCTION ON/IN/AT/TO/FOR/BY/WITH SUBSTANCE AND/EVEN/TOO--- (of) CONDITION(S), IN/TO/AT/ON/OF/- LIKE (of) WHICH IT MUST/SHOULD/OWES (to) BE (FOUND).
- 4. (of) DEFINITION/DETERMINATION/ATTRIBUTE 62(S) HOWEVER/THEN/ALSO (of) DERIVATIVE (of) UNITS/ONES (THEY) PURSUE/PERSECUTE/PROSECUTE 62 ONLY/SINGULAR AIM/TARGET (to) INSTALL/ESTABLISH/PLACE SIZES/DIMENSIONS/SCALES/METERS (of) UNITS/ONES, NOT CONCERNING/TOUCHING (of) METHODS (of) (to/for) (by/with/as) THEIR(S)//THEM (of) PRACTICAL (of) REALIZATION(S).
- 5. LAST/LATTER IS ATTAINED/REACHED (to/for)(by/with/as)SKILLFUL (by/with/as)CHOICE/SELECTION (of)PRIVATE/PARTICULAR/QUOTIENT<sub>1</sub>/PARTIAL<sub>1</sub> (of)CASE/CHANCE/OCCURRENCE (of)GENERAL/COMMON/TOTAL (of)LAWS
  (of)APPEARANCES/PHENOMENA/SYMPTOMS<sub>53</sub>, (of)TYING/CONNECTING/KNITTING (of)MAGNITUDE/QUANTITY(S), (of)UNIT/ONE(S) (of)WHICH (THEY)ENTER IN/TO/AT/ON/OF/LIKE DEFINITION/DETERMINATION/ATTRIBUTE<sub>G2</sub> (of)(to/for)(by/with/as)DERIVATIVE (of)UNIT/ONE(S),
- 6. SO, FOR-EXAMPLE, OUT/FROM (of) DEFINITION/DETERMINATION/ATTRIBUTE 62(S) (of) INTERNATIONAL (of) AMPERE (INDEPENDENT UNIT/ONE), HOW/AS/BUT (of) FORCE(S)/STRENGTH/EFFORT(S) (of) ELECTRIC(AL) (of) CURRENT/MATING-PLACE42, (of) POSTPONING/DEPOSITING DEFINITE SEDIMENT/PRECIPITATION (of) SILVER AT/WITH/BEFORE/IN-TIME-OF PASSING(TEROUGH) OVER/THROUGH/WITHIN/EVERY(OTHER) WATER SOLUTION/OPENING NITRIC-/NITRO (of) (to/for) (by/with/as) SILVER (of) (to/for) SALT(S), (is) STRAIGHT/DIRECT(LY) FLOWS-OUT/EMERGES METHOD (of) REALIZATION(S) (of) UNIT/ONE(S) AND/EVEN/TOO--- (of) (to/for) (by/with/as) HERS/ITS//HER/IT (of) STANDARD (of) SILVER (of) VOLTMETER, THEN HOW/AS/BUT OUT/FROM (of) DEFINITION/DETERMINATION/ATTRIBUTE 62(S) (of) ABSOLUTE (of) AMPERE (DERIVATIVE UNIT/ONE), HOW/AS/BUT (of) FORCE(S)/STRENGTH/EFFORT(S) (of) ELECTRIC(AL) (of) CURRENT/MATING-PLACE42, (of) FLOWING/-LEAKING ON/BY/ALONG/FOR/IN--- (to/for)TWO (IS) INFINITE(LY) (to/for) (by/with/as)LONG (to/for)-CONDUCTORS (IS) INSIGNIFICANT/WORTHLESS(LY) (of) SMALL (of) (CROSS) SECTION(S), (to/for) (by/with/as)-DEFINED/DETERMINED/ASSIGNED \*IN-A-DEFINITE-WAY/(by/with/as)DEFINITE-IMAGE (to/for)LOCATED/ARRANGED/-DISPOSED AND/EVEN/TOO--- (of) CREATING DEFINITE FORCE/STRENGTH/EFFORT (of) INTERACTION(S) BETWEEN/AMONG (by/with/as)THESE (by/with/as)CONDUCTORS, (of) NO (of) CONCRETE (of) METHOD (of)-

- REALIZATION(S) (of)STANDARD NOT FLOWS-OUT/EMERGES, SINCE (IS)INFINITE(LY) LONG CONDUCTORS, WHICH IN-ADDITION/TO(WARD)FOR THE-SAME (THEY)ENDURED/MAINTAINED/PASSED/AGED92/SOAKED95 (WOULD-HAVE)(HAVE) CURRENT/MATING-PLACE42 (by/with/as)FORCE/STRENGTH/EFFORT IN/TO/AT/ON/OF/LIKE ONE/ALONE AMPERE/(of)AMPERES AT/WITH/BEFORE/IN-TIME-OF (IS)INSIGNIFICANT/WORTHLESS(LY) SMALL (CROSS)SECTION PRACTICALLY NOT (ARE)REALIZABLE.
- 7. BUT USING LAW (of)INTERACTION(S) BETWEEN/AMONG (by/with/as)IMMOBILE/INACTIVE AND/EVEN/TOO/--(by/with/as)MOBILE/LIVELY (by/with/as)SPOOLS/\$PLANORBIS<sub>42</sub>/COILS<sub>83</sub>, (to/for)(by/with/as)DEFINED/DETERMINED/ASSIGNED \*IN-A-DEFINITE-WAY/(by/with/as)DEFINITE-IMAGE (by/with/as)LOCATED/ARRANGED/DISPOSED

  CONCERNING/(IS)RELATIVE(LY) EACH-OTHER IN/AT/ON--TERRESTRIAL--FIELD \*IN-THE-FIELD-OF-GRAVITY-OF-THEEARTH, AND/EVEN/TOO/--- BALANCING (by/with/as)LOAD FORCE/STRENGTH/EFFORT (of)INTERACTION(S) BETWEEN/AMONG THEM, IT-IS-POSSIBLE (to)REALIZE STANDARD (of)ABSOLUTE (of)AMPERE IN/TO/AT/ON/OF/LIKE (to/for)(UNI)FORM (of)WEIGHTS SCALES (AMPERE-SCALES).
- 8. OUT/FROM (of)ALL (of)(BEING)(RE)PRESENTED (of)METHODS (of)REALIZATION(S) (of)STANDARD (THEY)ARE CHOSEN/TAKEN-OUT//GET, (IS)FINAL/FINITE(LY)//OF-COURSE, THOSE, WHICH (THEY)ALLOW (to)SECURE/PROVIDE THE-VERY-BIG(GER) (METROLOGICAL) ACCURACY (of)REPRODUCTION(S) (of)UNIT/ONE(S).
- 9. (BEING)REALIZED STANDARDS MUST/SHOULD/OWE (to)POSSESS (by/with/as)UNCHANGEABILITY, (by/with/as)~
  REPRODUCIBILITY AND/EVEN/TOO/--- (by/with/as)COMPARABILITY.
- 10. THOSE (of) RELATIONSHIP//(of) PROPERTY/NATURE(S) SO (IS) TIGHT/CLOSE(LY) (ARE) TIED/CONNECTED/KNITTED

  ONE-WITH-ANOTHER, THAT/WHAT/WHICH (of) (to/for) (by/with/as) THEIR(S) // THEM IT-IS-POSSIBLE (to) CON
  SIDER/COUNT (by/with/as) ESSENTIAL (by/with/as) SIGNS, (by/with/as) INHERENT (to/for) EACH (to/for) 
  STANDARD.
- 11. UNDER/NEAR/LIKE/HEARTH-BOTTOM (by/with/as) UNCHANGEABILITY (of) STANDARD IS-IMPLIED (of) (to/for)(by/with/as) HIS/ITS//HIM/IT PROPERTY/NATURE/RELATIONSHIP (to) HOLD-BACK (to/for) (by/with/as) CONSTANT/INVARIABLE SIZE/DIMENSION/SCALE/METER (of) (to/for) (by/with/as) (BEING) REPRODUCED (by/with/as) HIM/IT//(to/for) THEM (of) UNIT/ONE(S) DURING UNLIMITEDLY (of) LONG (of) INTERVAL (of) (to/for) TIME/TENSE (BUT/AND ALL (of) CHANGE(S), DEPENDING-ON (of) DIFFERENT (of) EXTERNAL/FOREIGN (of) CONDITIONS ( (of) TEMPERATURE(S), (of) PRESSURE(S), (of) WEIGHT(S) AND-SO-FORTH ) OR (of) (to/for)(by/with/as) INTERNAL (of) STRUCTURE(S), MUST/SHOULD/OWE (to) BE (by/with/as) DEFINITE (by/with/as)FUNCTIONS (of) MAGENITUDES/QUANTITIES, (of) ACCESSIBLE (to/for) EXACT/PRECISE (to/for) MEASUREMENT.
- 12. THIS PROPERTY/NATURE/RELATIONSHIP FIRST-OF-ALL SUPPOSES/PROPOSES PROPER CHOICE/ELECTION (of)-MATERIAL FOR (of)PREPARATION(S) (of)STANDARDS.
- 13. LAST/LATTER NOT MUST/SHOULD/OWE (to)BE SUBJECTED/EXPOSED (to/for)WEAR, (to/for)AGING, (of)(to/for)CORROSION AND/EVEN/TOO/--- (to/for)(by/with/as)(AN)OTHER (to/for)CHANGES AT/WITH/BEFORE/IN-TIME-OF (of)(to/for)(by/with/as)THEIR(S)//THEM APPLICATION OR PROLONGED KEEPING.
- 14. FROM/OF/FOR (of)MATERIAL IS-REQUIRED STABILITY, STABILITY, SOMETIMES EXCEPTIONAL/EXCLUSIVE PURITY CLEANLINESS.
- 15. ALL CAUSING/CALLING DOUBT MATERIALS MUST/SHOULD/DWE (to)BE (ARE)EXCLUDED.
- 16. ACHIEVEMENT (of)THESE (of)CONDITIONS PRESENTS/REPRESENTS (IS)EXTRAORDINAR(IL)Y DIFFICULT
  PROBLEM, ON/IN/AT/TO/FOR/BY/WITH (RE)SOLUTION/DECISION DERIVATION (of)(to/for)(by/with/as)WHICH
  (THEY)WERE-SPENT CONSIDERABLE SIGNIFICANT (of)FORCE(S)/STRENGTH/EFFORT(S)/QUANTITY AND/EVEN/TOO/--NOT ALWAYS WITH/FROM/ABOUT (to/for)(by/with/as)PROPER (by/with/as)SUCCESS.
- 17. MUCH/MANY (of) STRESSES/EFFORTS, FOR-EXAMPLE, (THERE) WAS (IS) SPENT ON/IN/AT/TO FOR/BY/WITH

  FINDING (of) FUSION/FLOAT 46/ALLOY95, WHICH SECURED/PROVIDED (WOULD-HAVE) (WOULD (to/for) STANDARDS

  (of) ELECTRIC(AL) (of) RESISTANCE(S) (of) (to/for) (by/with/as) THEIR(S) THEM CONSTANCY; (ARE) ATTAIN
  ED/REACHED BIG(GER) SUCCESSES/PROGRESS IN/TO/AT/ON/OF/LIKE PREPARATION (of) MANGANIN, (of)
  POSSESSING (IS) EXTRAORDINAR(IL) Y (by/with/as) VALUABLE (by/with/as) METROLOGICAL (by/with/as) PROP
  ERTIES/NATURES, BUT NEVERTHELESS/ALL NOT (of) POSSESSING (by/with/as) CONSTANCY IN/TO/AT/ON/OF/-

- LIKE (of)(to/for)(by/with/as)THAT (of)(to/for)DEGREE/POWER(S), WHICH IS-REQUIRED (by/with/as)CONTEMPORARY (by/with/as)METHODS (of)EXACT/PRECISE (of)ELECTRIC(AL) (of)MEASUREMENTS, THEREFORE
  SEARCH/RAIDS (of)NEW (of)FUSIONS/FLOATS<sub>46</sub>/ALLOYS<sub>95</sub> (ALL)STILL/YET/MORE/ALSO (THEY)CONTINUE.
- 18. FOR (of)REPLACEMENT(S) (IS)DEAR(LY) (of)(to/for)(by/with/as)STANDING/COSTING/BEING-WORTH (of)PLATINUM (ARE)CREATED IRON- NICKEL FUSIONS/FLOATS46/ALLOYS95 (INVAR AND EVEN/TOO/--OTHER), ALSO POSSESSING VERY (by/with/as)VALUABLE (by/with/as)METROLOGICAL (by/with/as)PROPERTIES/NATURES, HOWEVER MANUFACTURED/PREPARED OUT/FROM THEM LINEAR/LINE96 (of)MEASURE(S)//-MERS (THEY)CHANGE/BETRAY OWN LENGTH WITH/FROM/ABOUT (by/with/as)CURRENT/COURSE (of)(to/for)TIME/TENSE62, THAT/WHAT/WHICH MAKES/DOES (of)(to/for)(by/with/as)THEIR(S)//THEM (by/with/as)UNSUITABLE FOR (of)PREPARATION/MANUFACTURE(S) (of)PRIMARY/INITIAL (of)STANDARDS.

# 2 -- ОСНОВЫ МАТЕМАТИЧЕСКОГО АНАЛИЗА, р. 140

- 1. DIFFERENTIATION (of) FUNCTIONS (of) (to/for) (by/with/as) ONE/ALONE (of) (to/for) (by/with/as) VARIABLE/-ALTERNATING 83/REVERSIBLE 91.
- 2. DERIVATIVE AND/EVEN/TOO/--- (of)(to/for)(by/with/as)HERS/ITS//HER/IT CALCULATION.
- 3. PROBLEM ABOUT/AGAINST/WITH CALCULATION (of)(to/for)SPEED(S) (of)MOVING-POINT.
- 4. GOING-OVER/CHANGING TO(WARD)/FOR (to/for)EXPOSITION/ACCOUNT (of)BASES/WARPS<sub>98</sub>/STEMS<sub>62</sub> (of)DIFFERENTIAL AND/EVEN/TOO/--- (of)INTEGRAL \*(of)INTEGRAL-CALCULUS, WE (WE)TURN/CONVERT/REDUCE<sub>3</sub> ATTENTION (of)READER ON/IN/AT/TO/FOR/BY/WITH THE-FACT-THAT/THAT-WHICH (of)IDEA(S) (of)THIS (of)-CALCULATION/CALCULUS(S) WERE-CONCEIVED STILL/YET/MORE/ALSO IN/TO/AT/ON/OF/LIKE XVII CENTURY/-EYELID, THAT-IS LONG-BEFORE (of)THOSE (of)THIN/FINE (of)THEORIES, WHICH WE STUDIED IN/-TO/AT/ON/OF/LIKE (of)PRECEDING CHAPTERS/HEADS.
- 5. ONLY/AS-SGON-AS IN/TO/AT/ON/OF/LIKE (of)(to/for)(by/with/as)CONCLUDING (to/for)CHAPTER/HEAD (of)THIS (of)VOLUME WE (WE)SHALL(BE) (to)HAVE POSSIBILITY (to)CONCERN/TOUCH (of)MOST-IMPORTANT
  (of)MOMENTS/FEATURES (of)(to/for)PRE-HISTORY (of)MATHEMATICAL (of)ANALYSIS AND/EVEN/TOO/--(to)CHARACTERIZE (of)SERVICE(S) (of)TWO (of)GREAT (of)MATHEMATICIANS NYUTONA AND/EVEN/TOO/--LEYENITSA, (of)HAVING-CONCLUDED (of)WORK(S) (of)OWN (of)PREDECESSORS (by/with/as)CREATION (IS)REAL/ACTIVE(LY) (of)NEW (of)CALCULATION/CALCULUS(S).
- 6. IN/TO/AT/ON/OF/LIKE OUR EXPOSITION/ACCOUNT WE (WE)SHALL(BE) (to)BE-GUIDED ALREADY//(IS/ARE)-MORE-NARROW(LY) (by/with/as)CONTEMPORARY (by/with/as)REQUIREMENTS/REQUESTS TO(WARD)/FOR (of)(to/for)STRICTNESS/SEVERITY(S), BUT/AND NOT (by/with/as)HISTORY/STORY (of)QUESTION.
- 7. HOWEVER, IN-THE-CAPACITY (of) INTRODUCTION IN/TO/AT/ON/OF/LIKE DIFFERENTIAL \*DIFFERENTIAL-CALCULUS, WE (LRT-US)(WE-SHALL)CONSIDER/OBSERVE IN/TO/AT/ON/OF/LIKE PRESENT/REAL NUMBER/TRICK PROBLEM ABOUT/AGAINST/WITH (of)(to/for)SPEED(S), BUT/AND IN/TO/AT/ON/OF/LIKE CLOSEST NUMBER/TRICK

  -- PROBLEM ABOUT/AGAINST/WITH (of)(to/for)(by/with/as)TOUCHING/TANGENT, BOTH (of)PROBLEM(S)
  HISTORICALLY (THEY)TURNED-OUT-TO-BE (by/with/as)TIED/CONNECTED/KNITTED WITH/FROM/ABOUT (by/with/as)FORMATION (of)BASIC (of)CONCEPT/IDEA(S) (of)DIFFERENTIAL \*DIFFERENTIAL-CALCULUS, SUBSEQUENTLY (Of)HAVING-GOTTEN NAME (of)(to/for)(by/with/as)DERIVATIVE.
- 8. (LET-US)(WE-SHALL) BEGIN WITH/FROM/ABOUT (of)PRIVATE/PARTICULAR/QUOTIENT<sub>1</sub>/PARTIAL<sub>1</sub> (of)EXAMPLE,
  NAMELY/JUST/EXACTLY, (LET-US)(WE-SHALL)CONSIDER/OBSERVE FREE FALL/INCIDENCE<sub>2</sub>/DIP<sub>73</sub> ((IN/TO/AT/ON/OF/LIKE (to/for)EMPTINESS/VACUUM/CAVITY/BLOWHOLE<sub>95</sub> -- (IN-ORDER)(THAT) NOT (to)CONSIDER/COUNT/DISCOUNT<sub>67</sub> (of)RESISTANCE(S) (of)AIR ) (of)(to/for)(by/with/as)DIFFICULT/HEAVY/SERIOUS (of)(to/for)(by/with/as)MATERIAL (of)POINT/PERIOD/SHARPENING(S).
- 9. IF TIME/TENSE<sub>62</sub> T ( SEC. ) IS-COUNTED FROM/OF/FOR BEGAN/(of)BEGINNING/PRINCIPLE(S) (of)FALL/INCIDENCE<sub>2</sub>/DIP<sub>73</sub>(S), THAT/THEN/OR PASSED BEHIND/BEYOND/FOR/AFTER/IN/AT/--- THIS TIME/TENSE<sub>62</sub>
  WAY/PASSAGE/JOURNEY/TRACK<sub>93</sub> S(M), ON/BY/ALONG/FOR/IN/--- (of)(to/for)(by/with/as)(WELL)KNOWN//-

$$s = \frac{GT^2}{2}$$
, where  $G = 9.81$ .

- 10. PROCEEDING/--- FROM-HERE, IS-REQUIRED (to)DEFINE/DETERMINE/ASSIGN SPEED (of)MOTION/MOVEMENT(S)

  (of)POINT/PERIOD/SHARPENING(S) IN/TO/AT/ON/OF/LIKE GIVEN MOMENT/FEATURE T, WHEN POINT/PERIOD/
  SHARPENING IS(FOUND)/--- IN/TO/AT/ON/OF/LIKE POSITION/CONDITION/THESIS/REGULATION M (Diag. 31).
- 11. (LET-US) (WE-SHALL) ADD/ATTACH (of) (to/for) (by/with/as) VARIABLE/ALTERNATING 83  $^{''}$  REVERSIBLE 1 CERTAIN-SOME INCREMENT  $\triangle$  T AND/EVEN/TOO/--- (LET-US) (WE-SHALL) CONSIDER/OBSERVE MOMENT/FEATURE T +  $\triangle$  T, WHEN POINT/PERIOD/SHARPENING WILL(BE) // ENOUGH IN/TO/AT/ON/OF/LIKE POSITION/CONDITION/THESIS/REGULATIONS M...
- 12. INCREMENT MM<sub>1</sub> (of)(to/for)WAY/PASSAGE/JOURNEY/TRACK $_{93}$ (S) BEHIND/BEYOND/FOR/AFTER/IN/AT/--- INTERVAL (of)(to/for)TIME/TENSE $_{62}$   $\triangle$  T (LET-US)(WE-SHALL)DESIGNATE OVER/THROUGH/WITHIN/EVERY(OTHER)  $\triangle$  S.
- 3 -- ДИФЕРЕНЦИАЛЬНОЕ ИСЧИСЛЕНИЕ, рр. 128-130
- 1, 55. INCREMENT.
- 2. SHOWN/POINTED SYSTEMATIC APPRAISAL (of) CHANGE(S) (of) MAGNITUDE/QUANTITY(S) (of) (to/for) FUNCTION—
  (S), (of) HAPPENING/COMING-FROM AS-RESULT//ON/BY/WITH/REASON/CAUSE (of) CHANGE(S) (of) MAGNITUDE/QUANTITY(S) (of) ARGUMENT; IS ATTAINED/REACHED (of) (to/for) (by/with/as) COMPARATIVE (by/with/as)APPRAISAL (of) INCREMENTS (of) (to/for) FUNCTION(S) AND/EVEN/TOO/--- (of) ARGUMENT.
- 3. IN-GENERAL (by/with/as) INCREMENT (of) (to/for) (by/with/as) SOME/ANY (of) (to/for) (by/with/as) VARIABLE/-ALTERNATING<sub>83</sub>/REVERSIBLE<sub>91</sub> \*(of) VARIABLE-QUANTITY, (of) (to/for) (by/with/as) GOING-OVER/CHANGING FROM/-OF/FOR (of) FORMER (of) NUMERICAL \*(of) NUMERICAL-VALUE TO(WARD) /FOR (to/for) NEW, IS CALLED/NAMED THAT ADDITION/INCREASE/(of) ADDITIONS/INCREASES, WHICH (IT) (IS) NECESSARY//OVER (to) ADD/ATTACH TO-(WARD) /FOR (of) (to/for) (by/with/as) HERS/ITS//HER/IT (to/for) FORMER (to/for) SIGNIFICANCE/VALUE<sub>1</sub>.
- 4. (THAT) MEANS, INCREMENT (of) (to/for) (by/with/as) VARIABLE/ALTERNATING 83 / REVERSIBLE 91 \* (of) VARIABLE-QUANTITY IS/ARE/(to) EAT (IS) SIMPLE/ELEMENTARY 3 (LY) VARIETY/DIFFERENCE BETWEEN/AMONG (to/for)-(by/with/as) NEW (by/with/as) SIGNIFICANCE/VALUE AND/EVEN/TOO/--- (to/for) (by/with/as) FORMER, (BEING) GOTTEN (by/with/as) SUBTRACTION (of) FORMER (of) SIGNIFICANCE/VALUE, (S) OUT/FROM (of) NEW.
- 5. INCREMENT (of)(to/for)(by/with/as)VARIABLE/ALTERNATING 83/REVERSIBLE 91 \*(of)VARIABLE-QUANTITY X IS-DESIGNATED (by/with/as)SYMBOL  $\triangle$  X, SO-THAT IF FORMER SIGNIFICANCE/VALUE (of)(to/for)- (by/with/as)THIS (of)(to/for)(by/with/as)VARIABLE/ALTERNATING 83/REVERSIBLE \*(of)VARIABLE-QUANTITY (IS)DESIGNATED (by/with/as)LETTER X, THAT/THEN/OR NEW (GROWN/INCREASED) (of)(to/for)(by/with/as)HER(S)/ITS/HER/IT SIGNIFICANCE/VALUE, WILL(BE)//ENOUGH X +  $\triangle$  X.
- 6. SYMBOL △ X IS-PRONOUNCED "DELTA X".
- 7. (WE)LET-KNOW-BEFORE/PREVENT/ANTICIPATE (of)STUDENT/STUDYING, THAT/WHAT/WHICH SYMBOL THIS IN-NO-WAY IT-IS-IMPOSSIBLE (to)READ "DELTA MULTIPLIED ON/IN/AT/TO/FOR/BY/WITH X" OR "DELTA ONCE/TIME(S) X", BECAUSE LETTER \( \triangle \) (IS)INSEPARABLE FROM/OF/FOR (of)LETTER(S) X, WITHOUT (of)(to for)(by with as)WHICH SHE/IT NOT HAS (of)NO (of)MEANING; STUDENT/STUDYING ALREADY//-(IS/ARE)MORE-NARROW(LY) (by/with/as)SIGN/(IS)FAMILIAR WITH/FROM/ABOUT (to/for)(by/with/as)ANALAGOUS (by/with/as)APPEARANCE/PHENOMENON/SYMPTOM\_53 IN/TO/AT/ON/OF/LIKE (of)(to/for)(by/with/as)ELEMENTARY/-RUDIMENTARY (to/for)ALGEBRA, WHERE 1g A HAS DEFINITE NUMERICAL MEANING, DESIGNATING LOGARITHM (of)NUMBER/DATE(S) A, WHEREAS (of)LETTER(S) 1 AND/EVEN/TOO/--- g TORN-OFF FROM/OF/FOR (of)LETTER(S) A, NOT (THEY)HAVE SEPARATELY (of)NO (of)NUMERICAL (of)MEANING.
- 8. (IT)(IS)EVIDENT(LY), THAT/WHAT/WHICH INCREMENT (of)(to/for)(by/with/as)VARIABLE/ALTERNATING<sub>83</sub>/RE-VERSIBLE<sub>91</sub> \*(of)VARIABLE-QUANTITY AT-ALL/COMPLETELY (IT)(IS)NONOBLIGATORY(LY) (IS)POSITIVE(LY):

  IT WILL(BE)//ENOUGH (to/for)(by/with/as)NEGATIVE, WHEN NEW SIGNIFICANCE/VALUE<sub>1</sub> (IS/ARE)SMALL-

- ER/LESS (of) FORMER; THIS WILL(BE) // ENOUGH, FOR-EXAMPLE, WHEN (of) (to/for) (by/with/as) VARIABLE/ALTERNATING R3/REVERS IBLE 1 \*(of) VARIABLE QUANTITY DIMINISHES/LEAVES.
- 9. (to/for)(by/with/es) analogous \*Analogically  $\triangle y$  signifies increment Y,  $\triangle Z$  signifies increment Z,  $\triangle \phi$  signifies increment (of) variable/alternating  $_{83}$ /reversible  $_{91}$   $\phi$ ,  $\triangle f(x)$  signifies increment (of)(to/for) function(s) f(x) and so-forth.
- 10. IF IN/TO/AT/ON/OF/LIKE EQUALITY/EQUATION y = f(x) NON-DEPENDENT VARIABLE/ALTERNATING 83/REVERSIBLE  $g_1$  x (Will) GET(S) INCREMENT  $\triangle x$ , THAT/THEN/OR UNDER/NEAR/LIKE/HEARTH-BOTTOM  $\triangle y$  ALWAYS (THEY) UNDERSTAND CORRESPONDING INCREMENT (of) (to/for) FUNCTION(S) f(x), THAT-IS INCREMENT (of) DEPENDENT (of) VARIABLE/ALTERNATING  $g_3$ /REVERSIBLE  $g_1$  y.
- 11. IT-IS-NECESSARY/FOLLOWS INCREMENT  $\triangle$  y (to) COUNT ALWAYS FROM/OF/FOR (of) DEFINITE (of) INITIAL/ELEMENTARY \*(of) INITIAL-VALUE y, (of) CORRESPONDING (to/for) THAT/VOLUME (IS) ARBITRARY(LY) (to/for) TAKEN (to/for) INITIAL/ELEMENTARY \*(to/for) INITIAL-VALUE x, FROM/OF/FOR (of) WHICH IS-COUNTED INCREMENT  $\triangle$  x.
- 12. (LET-US) (WE-SHALL) CONSIDER/OBSERVE, FOR-EXAMPLE, FUNCTION  $y = x^2$ .
- 13. HAVING-TAKEN BEHIND/BEYOND/FOR/AFTER/IN/AT/--- INITIAL/ELEMENTARY \*INITIAL-VALUE x = 10, (WE)GET INITIAL/ELEMENTARY \*INITIAL-VALUE y = 100.
- 14. LET/ALTHOUGH x (IS) INCREASED/MAGNIFIED (UP) TO/BEFORE x = 12, THAT-IS  $\triangle$  x = 2; THEN y INCREASED (UP) TO/BEFORE y = 144, (THAT) MEANS  $\triangle$  y = 144 100 = 44.
- 15. LET/ALTHOUGH x (IS) DECREASED (UP) TO/BEFORE x = 9, THAT-IS  $\triangle$  x = -1; THEN DIMINISHED/-LEFT (UP) TO/BEFORE y = 81, CONSEQUENTLY,  $\triangle$  y = 81 100 = -19.
- 16. IN-GENERAL, IF FUNCTION y = f(x) INCREASING, HOW/AS/BUT, POR-EXAMPLE, OUR(S) x² IN/TO/AT/ON/OF/LIKE INTERVAL O < X <∞, THAN/THEN/OR (IT)(IS)CLEAR(LY), THAT/WHAT/SOMETHING IF

  ∆ x (IS)POSITIVE(LY), THAT/THEN/OR AND/EVEN/TOO/--- ∆ y WILL(BE)//ENOUGH (to/for)(by/with/as)POSITIVE, AND/EVEN/TOO/--- IF ∆ x (IS)NEGATIVE(LY) THAT/THEN/OR AND/EVEN/TOO/--- ∆ y ALSO
  WILL(BE)//ENOUGH (to/for)(by/with/as)NEGATIVE.
- 17. (THAT) MEANS, BOTH (o1) INCREMENT(S),  $\triangle \times$  AND/EVEN/TOO/---  $\triangle y$ , in-this-case (they) have always <u>equal/identical</u> signs.
- 18. IF HOWEVER/THEN/ALSO FUNCTION y = f(x) DIMINISHING/LEAVING, THAN/THEN/OR (to/for)POSITIVE  $\triangle x$  ANSWERS (IT)(IS)EVIDENT(LY), (IS)NEGATIVE(LY)  $\triangle y$ , BECAUSE NEW SIGNIFICANCE/VALUE, y (IS/ARE)SMALLER//LESS (of)FORMER, (to/for)NEGATIVE  $\triangle x$  ANSWERS ALREADY/(IS/ARE)MORE-NARROW-(LY) POSITIVE  $\triangle y$ , FOR NOW NEW SIGNIFICANCE/VALUE, (of)(to/for)FUNCTION(S) MORE/(IS/ARE)-BIGGER (of)FORMER.
- 19. (THAT) MEANS,  $\triangle \times AND/EVEN/TOO/--- \triangle y$  IN-THIS-CASE ALWAYS (THEY) WILL (BE) (of) OPPOSITE/-OPPOSED (of) SIGNS.
- 4 -- ТЕОРИЯ ОШИБОК И СПОСОБ НАИМЕНЬШИХ КВАДРАТОВ, рр. 23-24
- 1. (of) ERROR(S) (of) LOGARITHMS (of) TRIGONOMETRIC (of) FUNCTIONS.
- 2. IF AT/WITH/BEFORE/IN-TIME-OF CALCULATION M<sub>1g</sub> ARISES QUESTION ABOUT/AGAINST/WITH FINDING/LOCATION (of) ERROR(S) (of) LOGARITHM (of) (to/for) TRIGONOMETRIC-FUNCTION, THAT/THEN/OR (IT) (IS)NECESSARY//OVER (to) PROCEED/--- OUT/FROM (of) FOLLOWING (of) CONSIDERATIONS: TABULAR (of) (to/for) VARIETY/DIFFERENCE<sub>1</sub>(S) (of) LOGARITHMS (of) TRIGONOMETRIC (of) FUNCTIONS MUST/SHOULD/OWE (to)BE CONSIDERED/OBSERVED HOW/AS/BUT (of) ERROR(S) (of) LOGARITHMS (of) TRIGONOMETRIC (of) FUNCTIONS,
  CAUSED/CALLED (by/with/as) ERRORS IN/TO/AT/ON/OF/LIKE ONE/ALONE UNIT/ONE IN/TO/AT/ON/OF/LIKE
  ARGUMENTS (IN/TO/AT/ON/OF/LIKE 1' IN/TO/AT/ON/OF/LIKE (of) FIVE-UNIT TABLES (of) LOGARITHMS
  PRZHEVALSKOGO AND/EVEN/TOO/--- IN/TO/AT/ON/OF/LIKE 10" (of) SIX-UNIT AND/EVEN/TOO/--- VEGA).
- 3. THEREFORE, ENOWING ERROR (of) ARGUMENT, (IT) IS) LIGHT/BASY(LY) (to) CALCULATE ERROR (of) LOGA-

RITHM (of)(to/for)TRIGONOMETRIC-FUNCTION ON/BY/ALONG/FOR/ON/--- (to/for)FORMULA:  $M_{1g}$  TRIGON. (of)(to/for)FUNCTION(S) = M (of)ARGUMENT  $d_{1g}$  TRIGON, (of)(to/for)FUNCTION(S), WHEREIN (of)-ERROR(S) (of)ARGUMENTS MUST/SHOULD/OWE (to)BE (ARE)EXPRESSED IN/TO/AT/ON/OF/LIKE UNITS/ONES, (of)EQUAL (to/for)INTERVAL (of)TABLES (of)LOGARITHMS (of)TRIGONOMETRIC (of)FUNCTIONS (IN/TO/AT/ON/OF/LIKE MINUTES AT/WITH/BEFORE/IN-TIME-OF USE/USUFRUCT\_68 (by/with/as)FIVE-UNIT (by/with/as)TABLES, IN/TO/AT/ON/OF/LIKE DECA- -SECONDS AT/WITH/BEFORE/IN-TIME-OF USE/USUFRUCT\_68 (by/with/as)TABLES) THAT-IS

- 4. (of) NOTE(S): IF FUNCTION, ERROR (of) (to/for) (by/with/as) WHICH US INTERESTS (RE) PRESENTS/IMAGINES \*REPRESENTS SUM OR VARIETY/DIFFERENCE, (of) SEVERAL (of) COMPONENTS/(BEING) MADE-UP/TAKEN/ADDED, EACH OUT/FROM (of) WHICH IS/APPEARS (by/with/as) FUNCTION (of) COMPLEX/COMPOUND
  (of) VIEW/SHAPE/SPECIES4/ASPECT62, THAT/THEN/OR, BEING-GUIDED (to/for) (by/with/as) LOGARITHMIC (by/with/as) METHOD, (ONE) MUST (to) CALCULATE MIDDLE/AVERAGE/MEAN1/NEUTRAL3/NEUTER62 (of) ERROR(S) (of)
  SEPARATE/INDIVIDUAL (of) COMPONENTS/(BEING) MADE-UP/TAKEN/ADDED, AND/EVEN/TOO/--- TO(WARD) /FOR HIM/IT/THEM (to) USE THEOREM ABOUT/AGAINST/WITH (of) (to/for) (by/with/as) MIDDLE/AVERAGE/MEAN1/NEUTRAL3/NEUTER62 (to/for) ERROR (of) SUM(S) OR VARIETY/DIFFERENCE1.
- 5. TABULAR (of)(to/for)VARIETY/DIFFERENCE1 (of)NATURAL/IN-KIND \*(of)NATURAL-VALUES (of)TRIGONOMETRIC (of)FUNCTIONS MUST/SHOULD/OWE (to)BE CONSIDERED/OBSERVED HOW/AS/BUT (of)ERROR(S) (of)NATURAL/-IN-KIND \*(of)NATURAL-VALUES (of)TRIGONOMETRIC (of)FUNCTIONS, CAUSED/CALLED (by/with/as)ERRORS IN/TO/AT/ON/OF/LIKE ONE/ALONE UNIT/ONE IN/TO/AT/ON/OF/LIKE ARGUMENTS IN/TO/AT/ON/OF/LIKE 10" [IN/TO/AT/ON/OF/LIKE (of)SIX-UNIT ( PETERSA ) AND/EVEN/TOO/--- (of)SEVEN-UNIT ( IOR-DANA ) TABLES (of)TRIGONOMETRIC (of)FUNCTIONS] .
- 6. THEREFORE, KNOWING ERROR (of) ARGUMENT, (IT)(IS) LIGHT/EASY(LY) (to) CALCULATE ERROR (of) NATURAL/IN-KIND \*(of) NATURAL-VALUE (of) (to/for) TRIGONOMETRIC-FUNCTION ON/BY/ALONG/FOR/IN/--- (to/for) FORMULA, M TRIGON. (of) (to/for) FUNCTION(S) M (of) ARGUMENT d TRIGON. (of) (to/for) FUNCTION(S), WHEREIN (of) ERROR(S) (of) ARGUMENTS MUST/SHOULD/OWE (to) BE (ARE) EXPRESSED IN/TO/AT/ON/OF/LIKE UNITS/ONES, (of) EQUAL (to/for) INTERVAL (of) TABLES (of) TRIGONOMETRIC (of) FUNCTIONS
  ( IN/TO/AT/ON/OF/LIKE DECA- -SECONDS AT/WITH/BEFORE/IN-TIME-OF (of) SIX-UNIT AND/EVEN/TOO/--(of) SEVEN-UNIT TABLES ).
- 7. RELATIVE (of) ERROR(S).
- 8. RELATIVE (of) ERROR(S) ALWAYS (THEY) ARE-EXPRESSED/EXPRESS-SELVES (by/with/as) DIVERTED/ABSTRACTED

  \*(by/with/as) ABSTRACT-NUMBERS, WHEREIN THESE (of) NUMBER/DATE(S) (IS) COMMON(LY) (THEY) ARE PRE
  SENTED/REPRESENTED//(THEY) SEEM-TO-BE (by/with/as) SHOT/FRACTION/TRILL/ROLL WITH/FROM/ABOUT (by/with/as) NUMBERATOR UNIT/ONE.
- 9. VERY (IS) FREQUENT/RHICK/RAPID(LY) QUALITY (of) (to/for) (by/with/as) ONE-OR-ANOTHER (of) MAGNITUDE/-QUANTITY(S) (IS/ARE) MORE FULL/STOUT/COMPLETE(LY) IS-CHARACTERIZED NAMELY/JUST/EXACTLY (of) (to/for) (by/with/as) RELATIVE \* (by/with/as) RELATIVE-ERROR, (of) (to/for) (by/with/as) EQUAL (to/for) PRIVATE/-PARTICULAR/QUOTIENT1/PARTIAL1 FROM/OF/FOR (of) DIVISION(S) (of) (to/for) (by/with/as) ABSOLUTE (FOR-EXAMPLE, (of) (to/for) (by/with/as) MIDDLE/AVERAGE/MEAN1/NEUTRAL3/NEUTER62) (of) ERROR(S) (of) (to/for) (by/with/as) MEASURED (of) MAGNITUDE/QUANTITY(S), ON/IN/AT/TO/FOR/BY/WITH NUMERICAL SIGNIFI-CANCE/VALUE1 (of) (to/for) (by/with/as) SELF/THE VERY/MOST (of) MAGNITUDE/QUANTITY(S), WHEREIN DIMENSION/MAGNITUDE (of) NUMERATOR AND/EVEN/TOO/--- (of) DENOMINATOR MUST/SHOULD/OWE(S) (to) BE (of)-

- (to/for)(by/with/as)EQUAL/IDENTICAL.
- 10. (LET-US) (WE-SHALL/NOTE THAT/WHAT/WHICH AT/WITH/BEFORE/IN-TIME-OF (to/for)APPRAISAL (of)(to/for)ACCURACY (of) CORNER/ANGULAR \*(of) ANGULAR-MEASUREMENTS NOT (IT)(IS) TAKEN/RECEIVED (to) CALCULATE
  RELATIVE (of) ERROR(S) (of) CORNERS/ANGLES, SINCE ERROR (of) MEASUREMENT(S) (of) CORNER/ANGLE
  NOT DEPENDS-ON (of) MAGNITUDE/QUANTITY(S) (of) CORNER/ANGLE.
- 11. (IS) CUSTOMARY/ORDINARY(LY) (IS) TAKEN/RECEIVED (to) DIVIDE MAGNITUDE/QUANTITY (of) (to/for) (by/with/as) CORNER/ANGUIAR (of) ERROR(S) ON/IN/AT/TO/FOR/BY/WITH MAGNITUDE/QUANTITY (of) CONSTANT/PERMANENT/DIRECT<sub>83</sub> (of) CORNER/ANGUE, (of) EQUAL (to/for) RADIAN, AND/EVEN/TOO/--- (to) GET IN-THIS-WAY CORNER/ANGULAR ERROR IN-THE-FORM/IN/AT/ON VIEW/SPECIES<sub>4</sub>/ASPECT<sub>62</sub> (of) DIVERTED/ABSTRACTED \*(of) ABSTRACT-NUMBER, WHICH SHOWS/POINTS, IN/TO/AT/ON/OF/LIKE HOW/AS MUCH/MANY ONCE/TIME(S) CORNER/-ANGULAR ERROR (IS/ARE) SMALLER/LESS (of) RADIAN.
- 12. SUCH (RE) PRESENTATION/IDEA GIVES/ALLOWS EXPRESSION (of)(to/for)(by/with/as)CORNER/ANGULAR (of)ERROR(S) IN/TO/AT/ON/OF/LIKE RADIANS.
- 13. CORNER/ANGULAR ERROR, EXPRESSED IN/TO/AT/ON/OF/LIKE RADIANS, CAN (to)BE CONSIDERED/OBSERVED HOW/AS/BUT CROSS/TRANSVERSE RELATIVE ERROR, WHICH NOT DEPENDS-ON (of)LENGTH(S) (of)(to/for)LINE(S).
- 14. THEN RELATIVE ERROR (of) LENGTH(S) (of) (to/for) LINE(S) MUST/SHOULD/OWE(S) (to) BE (IS) NAMED/CALLED (of) (to/for) (by/with/as) LONGITUDINAL/LENGTHWISE (of) (to/for) (by/with/as) RELATIVE \*(by/with/as) RELATIVE-ERROR.
- 15. CALCULATION (of) LONGITUDINAL/LENGTHWISE AND/EVEN/TOO/--- (of) CROSS/TRANSVERSE (of) RELATIVE (of) ERRORS GIVES/ALLOWS POSSIBILITY (to) COMPARE ACCURACY (of) SINGLE (of) CORNER/ANGULAR AND/-EVEN/TOO/--- (of) LINEAR/LINE96 (of) LINEAR-MEASUREMENTS FROM-THE-POINT-OF-VIEW (of) MAGNITUDE/-QUANTITY(S) (of) ERROR(S) (of) POSITION/CONDITION/THESIS/REGULATION(S) (of) (to/for) (by/with/as) FINAL/-FINITE (of) POINT/PERIOD/SHARPENING(S) (of) (to/for) LINE(S).
- 5 -- ТЕОРИЯ ДВИЖЕНИЯ ЖИДКОСТЕЙ И ГАЗОВ В НЕДЕФОРМИРУЕМОЙ ПОРИСТОЙ СРЕДЕ. рр. 145-6
- 1. FIAT \*FIAT -- ESTABLISHING/INSTALLING/PLACING \*PIANE-STEADY-FILTRATION (of)(to/for)(by/with/as)-DIFFICULT/HEAVY/SERIOUS (of)(to/for)(by/with/as)INCOMPRESSIBLE (of)(to/for)LIQUID(S).
- 2. §38. CONCEPT/IDFA ABOUT/AGAINST/WITH (of)(to/for)PLANE-FILTRATION.
- 3. FILTRATION IS CALLED/NAMED (of)(to/for)(by/with/as)FLAT, IF ALL (of)PARTICLE(S) (of)(to/for)-(by/with/as)FILTERING (of)(to/for)LIQUID(S) (THEY)ARE MOVED/SHIFTED IN/TO/AT/ON/OF/LIKE PLANES/-FLATNESSES, (of)PARALLEL (of)(to/for)(by/with/as)CERTAIN/SOME (of)(to/for)(by/with/as)IMMOBILE/IN-ACTIVE (of)(to/for)PLANE/FLATNESS(S), WHEREIN CHARACTER (of)MOTION/MOVEMENT(S) (of)PARTICLES (of)(to/for)LIQUID(S), (of)BELONGING (of)(to/for)(by/with/as)DIRECT/STRAIGHT(LINE)/RIGHT<sub>12</sub>, (of)-(to/for)(by/with/as)PERPENDICULAR TO(WARD)/FOR (of)(to/for)(by/with/as)THIS (of)(to/for)PLANE/-FLATNESS(S), (IS)BQUAL/IDENTICAL.
- 4. THEREFORE AT/WITH/BEFORE/IN-TIME-OF STUDY (of)(to/for)(by/with/as)FLAT \*(of)(to/for)PLANE-STEADY-INFILTRATION (IT)(IS)SUFFICIENT(LY) (to)BE-LIMITED/LIMIT-SELF (by/with/as)CONSIDERATION (of)MO-TION/MOVEMENT(S) (of)(to/for)LiQUID(S) IN/TO/AT/ON/OF/LIKE (of)(to/for)(by/with/as)ONE/ALONE OUT/FROM (of)SHOWN/POINTED (IS/ARE)HIGHER/TALLER//BEFORE (of)PLANES/FLATNESSES, (of)(to/for)(by/with/as)(BEING)CALLED/NAMED LATER-ON/IN-FURTHER (by/with/as)PLANE/FLATNESS (of)(to/for)FILTRATION(S).
- 5. THEN (BEING) CONSIDERED/OBSERVED AREA/OBLAST (of) (to/for) FILTRATION(S) WILL(BE) // ENOUGH (of) (to/for) (by/with/as) FIAT.
- 6. SPEED (of)(to/for)FILTRATION(S) IN/TO/AT/ON/OF/LIKE (of)(to/for)(by/with/as)ANY (to/for)POINT/PERIOD/SHARPENING (of)(to/for)AREA/OBLAST(S) (of)(to/for)FILTRATION(S) WILL(BE)//ENOUGH (to)LIE
  IN/TO/AT/ON/OF/LIKE (of)(to/for)PLANE/FLATNESS(S) (of)(to/for)FILTRATION(S) AND/EVEN/TOO/---, CON-

- SEQUENTLY, WILL(BE)//EMOUGH (to)HAVE ONLY TWO MAKING-UP/PUTTING/COMPONENTS ON/BY/ALONG/FOR/IN (to/for)AXES/AXLES (of)COORDINATES (of)(to/for)(by/with/as)THIS (of)(to/for)PLANE/FLATNESS.
- 7. SHOWN/POINTED MAKING-UP/FUTTING/COMPONENTS, HOW/AS/BUT AND/EVEN/TOO/--- OTHER (of) CHARACTERISTIC/DESCRIPTION/RATING83/PERFORMANCE91(S) (of) FILTRATION (of) TORRENT/STREAM/FLOW ( PRESSURE, PRESSURE AND-SO-FORTH ) (THEY) WILL(BE) (by/with/as) FUNCTIONS (of) TWO (of) COORDINATES (of) --- POINTS/PERIODS/SHARPENINGS (of) (to/for) AREA/OBLAST(S) (of) (to/for) FILTRATION(S) AND/EVEN/TOO/--- (of) (to/for) TIME/TENSE62. 1 ). LAST/LATTER-- IN/TO/AT/ON/OF/LIKE CASE/CHANCE/OCCURRENCE (of) --- (to/for) (by/with/as) NON-STEADY (of) (to/for) FILTRATION(S).
- 8. IN/TO/AT/ON/OF/LIKE (of)(to/for)(by/with/as)PRESENT/REAL (to/for)CHAPTER/HEAD IS CONSIDERED/OBSERVED ONE/ALONE VIEW/SHAPE/SPECIES<sub>4</sub>/ASPECT<sub>62</sub> (of)(to/for)(by/with/as)FLAT \*FLAT -- ESTABLISHING/INSTALL-ING/PLACING \*PLANE-STEADY-FILTRATION(S) (of)(to/for)(by/with/as)DIFFICULT/HEAVY/SERIOUS (of)(to/for)-(by/with/as)INCOMPRESSIBLE/NON-CONTRACTIBLE (of)(to/for)LIQUID(S), WHEN PLANE/FLATNESS (of)(to/for)FILTRATION(S) WILL(BE) (of)(to/for)(by/with/as)VERTICAL.
- 9. (of)(to/for)(by/with/as)(AN)OTHER VIEW/SHAPE/SPECIES<sub>4</sub>/ASPECT<sub>62</sub> (of)(to/for)(by/with/as)FIAT \*FIAT

  -- ESTABLISHING/INSTALLING/PLACING \*(of)(to/for)PLANE-STEADY/FILTRATION(S), -- WHEN (by/with/as)PLANE/FLATNESS (of)(to/for)FILTRATION(S) WILL(BE) HORIZONTAL PLANE/FLATNESS, -- (IS)CONSIDERED/OBSERVED (IS/ARE)LOWER/SHORTER/BELOW, IN/TO/AT/ON/OF/LIKE (to/for)CHAPTER/HEAD (9).
- 10. FIAT \*FIAT -- ESTABLISHING/INSTALLING/PIACING \*PIANE-STEADY/FILTRATION (of)(to/for)(by/with/as)DIFFICULT/HEAVY/SERIOUS (of)(to/for)(by/with/as)INCOMPRESSIBLE/NON-CONTRACTIBLE (of)(to/for)LiQUID(S)

  ( IN/TO/AT/ON/OF/LIKE CASE/CHANCE/OCCURRENCE (of)(to/for)(by/with/as)VERTICAL (of)(to/for)PIANE/FIATNESS(S) (of)(to/for)FILTRATION(S) ) HAS VERY BIG SIGNIFICANCE/VALUE\_1 IN/TO/AT/ON/OF/LIKE (to/for)HYDROTECHNICS.
- 11. IN/AT/ON -- MANY \*IN-MANY-CASES (of) (to/for) FILTRATION(S) IN/TO/AT/ON OF/LIKE FOUNDATIONS/BASES (of) MASSIVE (of) HYDROTECHNICAL (of) BUILDINGS, (of) (to/for) FILTRATION(S) OVER/THROUGH/WITHIN/-EVERY(OTHER) BODY AND/EVEN/TOO/--- FOUNDATION/BASE (of) EARTH (of) DAMS, (of) (to/for) FILTRATION(S) OUT/FROM (of) RIVERS, (of) CANALS/CHANNELS/DUCTS/BORES<sub>97</sub> AND/EVEN/TOO/--- (of) WATER-RESERVOIRS, (of) (to/for) FILTRATION(S) TO(WARD)/FOR (to/for) (by/with/as) BUILDING/CONSTRUCTION (to/for) PITS AND/EVEN/TOO/--- (to/for) (by/with/as) HORIZONTAL (to/for) DRAINS AND-SO-FORTH FILTRATION TORRENT/STREAM/FLOW CAN (to) BE (IS) TAKEN/RECEIVED (to/for) (by/with/as) FLAT.
- 12. EVEN IN-THOSE-CASES, WHEN FILTRATION TORRENT/STREAM/FLOW HAS SPATIAL CHARACTER, BY-MEANS/(by/with/as)WAY/PASSAGE/JOURNEY/TRACK<sub>93</sub> (of)(to/for)(by/with/as)REASONABLE (of)(to/for)SCHEMATIZATION(S), (of)(to/for)(by/with/as)BRINGING/CITING/REDUCING<sub>1</sub> TO(WARD)/FOR (to/for)ACCEPTABLE (to/for)SUPPLY/RESERVE IN/TO/AT/ON/OF/LIKE CALCULATION/DISMISSALS, (of)(to/for)(by/with/as)HIS/ITS//HIM/IT
  IT-IS-POSSIBLE (to)REPIACE (to/for)(by/with/as)FIAT (by/with/as)TORRENT/STREAM/FLOW, EVEN(IF)
  IN/TO/AT/ON/OF/LIKE (of)(to/for)(by/with/as)CERTAIN/SOME (of)(to/for)PART/DEPARTMENT/FATE/UNIT-OT(S).
- 13. LAST/LATTER CIRCUMSTANCE ACQUIRES SEPARATE/SPECIAL SIGNIFICANCE/VALUE, BECAUSE (UP)TO/BEFORE (of) PRESENT/REAL (of)(to/for)TIME/TENSE<sub>62</sub> WE NOT (WE)HAVE (of)SOME/ANY (of)THEORETICAL (of)-METHODS (of)INVESTIGATION(S) (of)(to/for)(by/with/as)SPATIAL (of)(to/for)FILTRATION(S).
- 14. INVESTIGATION (of) SPATIAL (of) TORRENTS/STREAMS/FLOWS (IT) TURNS-OUT-TO-BE//IS EXERTED/GIVEN (to/for)(by/with/as) POSSIBLE ONLY/AS-SOON-AS WITH-HELP (of) METHOD EGDA ( SEE/CM, CHAPTER/HEAD 12 ).
- 15. SUCH (of) INVESTIGATION(S) ARE CONDUCTED/INSTALLED/CARRIED-OUT/SPENT IN/TO/AT/ON/OF/LIKE (of)SPECIAL LABORATORIES AND/EVEN/TOO/--- (THEY) REQUIRE (of) EXPENDITURE(S) (of) LARGE/IMPORTANT

  (of) MATERIAL (of) MEANS/REMEDIES<sub>55</sub>, BUT/AND FOR-THAT-REASON (THEY) ARE-USED/ADAPT-SELVES ONLY
  AT/WITH/BEFORE/IN-TIME-OF PROJECTING/PLANNING SEPARATELY/ESPECIALLY (of) RESPONSIBLE/CRITICAL

  (of) BUILDINGS.

- 6 -- ИССЛЕДОВАНИЯ ПО ДИНАМИКЕ НЕГОЛОМНЫХ СИСТЕМ, рр. 72-3
- 1. ABOUT/AGAINST/WITH ROLLING/SLIDING/RIDING (of) SPHERE/BALLOON ON/BY/ALONG/FOR/IN/--- (of) (to/for)-(by/with/as) HORIZONTAL \*(of) (to/for) HORIZONTAL-SURFACE.
- 2. 1. INTRODUCTION.
- 3. PROBLEM ABOUT/AGAINST/WITH ROLLING/SLIDING RIDING (of) DIFFICULT/HEAVY/SERIOUS (of) SOLID/HARD/-FIRM (of) BODY(S) ON/BY/ALONG/FOR/IN/--- (of) (to/for) (by/with/as) HORIZONTAL \*(of) (to/for) HORIZON-TAL-SURFACE IN/TO/AT/ON/OF/LIKE PRESENT/REAL TIME/TENSE<sub>62</sub> (IS) SOLVED/ALLOWED/ABSOLVED<sub>68</sub> ONLY/-AS-SOON-AS IN/TO/AT/ON/OF/LIKE (of) FEW (of) PRIVATE/PARTICULAR/QUOTIENT<sub>1</sub>/PARTIAL<sub>1</sub> CASES/CHANCES/-OCCURRENCES.
- 4. BESIDES (of)MADE-OUT/TAKEN-APART STILL/YET/MORE/ALSO EILEROM (of)CASE/CHANCE/OCCURRENCE, WHEN ROLLING/SLIDING BODY (IS)LIMITED (by/with/as)CYLINDRICAL (by/with/as)SURFACE, EXACT/PRECISE (of)(RE)SOLUTION/DECISION/DERIVATION<sub>1</sub>(S) (ARE)(WELL)KNOWN/CERTAIN: FOR (of)HOMOGENEOUS (of)-SPHERE/BALLOON, FOR (of)ROUND (of)DISC, FOR (of)HETEROGENEOUS (of)SPHERE/BALLOON, CENTER-OF-GRAVITY (of)WHICH COINCIDES WITH/FROM/ABOUT (to/for)(by/with/as)GEOMETRIC (by/with/as)-CENTER/NUCLEUS<sub>95</sub>, BUT/AND CENTRAL/CENTER ELLIPSOID (of)(to/for)INERTIA HAS (UNI)FORM (of)-SPHEROID; (to/for)US (IT)SUCCEEDED (to)SHOW/TESTIFY<sub>68</sub>, THAT/WHAT/WHICH THIS PROBLEM IS BROUGHT/CITED/REDUCED<sub>1</sub> TO(WARD)/FOR (to/for)SQUARINGS/QUADRATURES AND/EVEN/TOO/--- IN-A-CASE-WHERE CENTER-OF-GRAVITY NOT COINCIDES WITH/FROM/ABOUT (to/for)(by/with/as)GEOMETRIC (by/with/as)CENTER/NUCLEUS<sub>95</sub>.
- 5. IN/TO/AT/ON/OF/LIKE (of)ALL (of)BROUGHT/CITED/REDUCED<sub>1</sub> CASES/CHANCES/OCCURRENCES (of)POINT/SPOT<sub>9</sub>
  \*(of)POINT-CONTACT (of)MOVING/ADVANCING/(BEING)MOVED (of)BODY(S) TO(WARD)/FOR (of)(to/for)PIANE/FIATNESS(S) (to/for)(by/with/as)NECESSARY (by/with/as)CONDITION (of)(RE)SOLUTION/DECISION/DERIVATION<sub>1</sub>(S) WAS TAKEN/RECEIVED EQUALITY/EQUATION (of)TWO (of)MAIN (of)MOMENTS-OF-INERTIA.
- 6. HOW/AS MUCH/MANY WE (WE)KNOW, NOT/NEITHER ONE/ALONE PROBLEM ABOUT/AGAINST/WITH ROLLING/SLIDING/RIDING (of)BODY(S), CENTRAL/CENTER ELLIPSOID (of)(to/for)INERTIA (of)WHICH HAS VIEWSHAPE/SPECIES<sub>4</sub>/ASPECT<sub>62</sub> (of)TRIAXIAL (of)ELLIPSOID, NOT WAS UP-TO-NOW (IS)SOLVED/DECIDED
  IN/TO/AT/ON/OF/LIKE (of)(to/for)(by/with/as)ALL (to/for)WIDTH/IATITUDE.
- 7. IN/TO/AT/ON/OF/LIKE (of)(to/for)(by/with/as)(BEING)OFFERED (to/for)ARTICLE WE (WE)SOLVE/DECIDE QUESTION-OF ROLLING/SLIDING/RIDING ON/BY/ALONG/FOR/IN/--- (of)(to/for)PLANE/FLATNESS(S) (of)SYMMETRICAL (of)SPHERE/BALLOON, WHEREIN NOT (WE)LAY(OF)/IMPOSE (of)NO (of)CONSTRAINTS NOT/-NEITHER ON/IN/AT/TO/FOR/BY/WITH MAIN MOMENTS/FEATURES (of)(to/for)INERTIA, NOT/NEITHER ON/IN/-AT/TO/FOR/BY/WITH INITIAL/ELEMENTARY (of)CIRCUMSTANCE(S) (of)MOTION/MOVEMENT(S).
- 8. TO(WARD)/FOR (to/for)ANALYTIC (RE)SOLUTION/DECISION/DERIVATION<sub>1</sub> (of)(to/for)(by/with/as)THIS
  (of)PROBLEM(S) WE (WE)JOIN/ADD IN/TO/AT/ON/OF/LIKE END/WAY/LEAD<sub>83</sub> (of)WORK(S) CERTAIN/SOME
  GEOMETRIC (of)CONSIDERATION(S), IN/AT/ON -- CONSIDERABLE/SIGNIFICANT \*TO-A-CONSIDERABLE-EXTENT
  CLARIFYING CHARACTER (of)MOTION/MOVEMENT(S) IN/TO/AT/ON/OF/LIKE GENERAL/COMMON/TOTAL CASE/CHANCE/OCCURRENCE AND/EVEN/TOO/--- DRAWING/PAINTING FULL/STOUT/COMPLETE (of)(to/for)(by/with/as)HIS/ITS//HIM/IT PICTURE AT/WITH/BEFORE/IN-TIME-OF (of)SEPARATE/SPECIAL (of)PRIVATE/PARTICULAR/QUOTIENT<sub>1</sub>/PARTIAL<sub>1</sub> ASSUMPTIONS.
- 9. SUCCESS (of) (RE) SOLUTION/DECISION/DERIVATION1(S) IS DETERMINED/CONDITIONED (by/with/as) APPLICABILITY TO(WARD)/FOR (to/for) (BEING) CONSIDERED/OBSERVED (to/for) QUESTION (of) (to/for) (by/with/as) GENERALIZED (of) THEOREM(S) (of) SQUARES/AREAS/SPACES, ON-ACCOUNT-OF (of) (to/for) (by/with/as) WHICH MAIN MOMENT/FEATURE (of) QUANTITIES (of) MOTION/MOVEMENT(S) (of) OUT (of) SPHERE/BALLOON, BUILT FOR (of) POINT/PERIOD/SHARPENING(S) \*(of) POINT(S) -OF-CONTACT TO(WARD)/FOR (of) (to/for) PLANE/FLATNESS(S), MUST/SHOULD/OWE(S) (to) KEEP CONSTANT/PERMANENT/DIRECT83 MAGNITUDE/QUANTITY AND/EVEN/TOO/---- CONSTANT/INVARIABLE DIRECTION IN/TO/AT/ON/OF/LIKE SPACE/AREA.
- 10. (by/with/as)THIS/(to/for)THESE (by/with/as)CIRCUMSTANCE WE (WE)MAKE-USE-OF/ENJOY AND/EVEN/TOO/---

AT/WITH/BEFORE/IN-TIME-OF MAKING-UP (of) SELVES (of) EQUALIZINGS/EQUATIONS, (of) MOTION/MOVEMENT(S).

- 7 -- ТЕОРИЯ АЛГЕБРАИЧЕСКИХ ФУНКЦИЙ, рр. 373-4
- 1. ALGEBRAIC (of)(to/for)FUNCTION(S) (of)MANY (of)INDEPENDENT \*(of)INDEPENDENT-VARIABLES.
- 2. DIRECT GENERALIZATION (of)METHODS (of)(to/for)THEORY(S) (of)ALGEBRAIC (of)FUNCTIONS ON/IN/AT/TO/FOR/BY/WITH (of)(to/for)FUNCTION(S) FROM/OF/FOR (of)SEVERAL (of)INDEPENDENT \*(of)INDEPENDENTVARIABLES MEETS BIG(GER) (of)DIFFICULTY(S).
- 3. APPLICATION (of)(to/for)THBORY(S) (of)ANALYTIC (of)FUNCTIONS NOT BRINGS/CITES/REDUCES<sub>1</sub> TO-... (WARD)/FOR (to/for)(by/with/as)SUCH (to/for)(by/with/as)ENDED/COMPLETED (to/for)RESULTS, HOW/AS/-BUT IN/TO/AT/ON/OF/LIKE CASE/CHANCE/OCCURRENCE (of)(to/for)(by/with/as)ONE/ALONE (of)(to/for)(by/with/as)INDEPENDENT \* (of)(to/for)(by/with/as)INDEPENDENT-VARIABLE, IN-AS-MUCH-AS SELF THEORY (of)ANALYTIC (of)FUNCTIONS NOT ADMITS (IT)(IS)SUFFICIENT(LY) (of)SATISFACTORY (of)GENERALIZATION(S) ON/IN/AT/TO/FOR/BY/WITH CASE/CHANCE/OCCURRENCE (of)SEVERAL (of)VARIABLE/ALTERNATING83/-REVERSIBLE01.
- 4. GENERALIZING \$RIEMANN \*\$RIEMANN-SURFACES, WE COLLIDE/MEET WITH/FROM/ABOUT (by/with/as)IGNOR-ANCE (of)(to/for)(by/with/as)FULL/STOUT/COMPLETE (of)SYSTEM(S) (of)TOPOLOGICAL (of)VARIANTS (of)SURFACES IN/TO/AT/ON/OF/LIKE (of)MULTI-DIMENSIONAL SPACES/AREAS (CLOSED/LOCKED/RESERVED (of)(to/for)SURFACE(S) IN/TO/AT/ON/OF/LIKE (of)THREE-DIMENSIONAL SPACES/AREAS (THEYOHAVE ONLY/-SINGULAR INVARIANT -- ORDER \*ORDER-OF-COMPENDENCY).
- 5. ARITHMETICAL THEORY ALSO NOT ADMITS (of)SATISFACTORY (of)GENERALIZATION(S), SINCE THEORY (of)IDEALS IN/TO/AT/ON/OF/LIKE CASE/CHANCE/OCCURRENCE (of)SEVERAL (of)INDEPENDENT \*(of)INDEPENDENT-VARIABLES NOT BRINGS/CITES/REDUCES<sub>1</sub> TO(WARD)/FOR (to/for)ONE-DIGIT/UNAMBIGUOUS (to/for)-DEMORALIZATION/DECOMPOSITION/EXPANSION<sub>11</sub> (of)IDEALS ON/IN/AT/TO/FOR/BY/WITH SIMPLE/ELEMENTARY<sub>3</sub>/-PRIME<sub>1</sub> IDEALS.
- 6. BIRATIONAL \*BIRATIONAL-TRANSFORMATIONS NOT (THEY) LEAVE/RESERVE (by/with/as) INVARIANT EVEN (of) MEASUREMENTS (of) IDEALS.
- 7. HOWEVER WITH-THE-AID-OF (of) GEOMETRIC (of) METHOD IN/TO/AT/ON/OF/LIKE (of) (to/for) THEORY(S)
  (of) ALGEBRAIC (of) FUNCTIONS FROM/OF/FOR (of) TWO (of) INDEPENDENT \*(of) INDEPENDENT-VARIABLES
  (THERE) WAS (IS) GOTTEN RATHER/(IT) (IS) ENOUGH MUCH/MANY (of) RESULTS.
- 8. HERE THE-MOST (by/with/as)PRODUCTIVE (THEY)TURNED-OUT-TO-BE REPRESENTATIVES (of)(to/for)(by/-with/as)\$ITALIAN (of)SCHOOL(S) (of)GEOMETRISTS.
- 9. BASIC RESULTS (of)(to/for)(by/with/as)THEIR(S)//THEM (of)WORKS (ARE)BROUGHT/CITED/REDUCED IN/TO/AT/ON/OF/LIKE (of)(to/for)(by/with/as)BIG (of)(to/for)MONOGRAPH(S) \$PICARA ( E. PICARD )

  AND/EVEN/TOO/--- \$SIMARA ( G. SIMART ) [82], WHICH SIDE-BY-SIDE-WITH (to/for)(by/with/as)GEOMETRIC (by/with/as)METHOD, (IS)WIDE(LY) (THEY)MADE-USK-OF/ENJOYED (by/with/as)METHOD (of)
  (to/for)THEORY(S) (of)ANALYTIC (of)FUNCTIONS.
- 10. (by/with/as) BASIC (by/with/as) INVARIANTS (of) ALGEBRAIC (of) SURFACES (1) f(x,y,z) = 0 CONCERNING/(1S) RELATIVE(LY) (of) ALL-POSSIBLE (of) BIRATIONAL \*(of) BIRATIONAL-TRANSFORMATIONS (THEY) ARE/-APPEAR: (1) GEOMETRIC GENRE Pg, THAT-IS NUMBER/DATE (IS) LINEAR (LY)/LINE96 (of) INDEPENDENT (of) DOUBLE/GEMMINATE (of) INTEGRALS 1-TH (of) TYPE/TRIBE/GENUS (GENDER 62 (THAT-IS (of) TAKING/-RECEIVING EVERYWHERE FINAL/FINITE (of) SIGNIFICANCE/VALUE (S); (2) ARITHMETICAL GENRE Pa OR Pn, WHICH WE NOT (WE) SHALL (BE) (IT) (IS/ARE) CLOSER (to) DEFINE/DETERMINE/ASSIGN; HE/IT NOT EXCEEDS Pg AND/EVEN/TOO/--- FOR (of) CERTAIN/SOME (of) SURFACES HAS NEGATIVE SIGNIFICANCE/VALUE (3) BIGENRE P2, WHICH IT(IS) POSSIBLE (to) DEFINE/DETERMINE/ASSIGN HOW/AS/BUT NUMBER/DATE (IS) LINEAR (LY)/LINE96 (of) INDEPENDENT (of) QUADRUPLE (of) INTEGRALS IN/TO/AT/ON/OF/-LIKE FIELD/BRIM/MARGIN/(to/for) FIAP (x,y,z; ε, η, ξ), WHERE SIDE-BY-SIDE-WITH (1), HAS

- PLACE  $f(\epsilon, \eta, \zeta) = 0$ ; (4) (IS)ANALOGOUS(LY) IS DEFINED/DETERMINED/ASSIGNED THREE-/TRIGENRE  $P_3$  AND-SO-FORTH.
- 11. SURFACE (1) IS CALLED/NAMED (of)(to/for)(by/with/as)RATIONAL, IF ALL ELEMENTS (of)FIELD/ERIM/MARGIN(S) k(x,y,z) (THEY)CAN (to)BE (IS)RATIONAL(LY) (ARE)EXPRESSED OVER/THROUGH/WITHIN/EVERY(OTHER) TWO (of)INDEPENDENT (of)ELEMENT (of)THIS (of)FIELD/BRIM/MARGIN(S).
- 12. FOR (of) RATIONAL (of) SURFACES ALL ENUMERATED/TRANSFERRED INVARIANTS (ARE) EQUAL (to/for) ZERO.
- 13. REVERSELY/INVERSELY/CONVERSELY/BACK, ANY/EACH SURFACE, FOR (of)(to/for)(by/with/as)WHICH  $P_a = P_b = 0$ , (18) RATIONAL.
- 8 -- КУРС НАЧЕРТАТЕЛЬНОЙ ГЕОМЕТРИИ, р. 283
- 1. §65. MUTUAL/RECIPROCAL INTERSECTION (of) POLYHEDRONS.
- 2. CONSTRUCTION/FORMATION<sub>97</sub> (of) (to/for) LINE(S) \*(of) (to/for) LINE-OF-INTERSECTION (of) SURFACES (of) POLYHEDRONS (IT) (IS) POSSIBLE (to) MAKE/DERIVE (by/with/as) TWO (by/with/as) METHODS, COMBINING
  (of) (to/for) (by/with/as) THEIR(S) // THEM BETWEEN/AMONG (by/with/as) SELF/SELVES OR CHOOSING/TAKINGOUT OUT/FROM THEM THAT, WHICH DEPENDING-ON (of) CONDITIONS (of) PROBLEM/ASSIGNMENT(S) GIVES/ALLOWS MORE SIMPLE/ELEMENTARY<sub>3</sub>/PRIME<sub>1</sub> (of) CONSTRUCTION/FORMATION<sub>97</sub>(S).
- 3. THESE METHODS FOLLOWING: 1) (THEY) DEFINE/DETERMINE/ASSIGN (of) POINT/PERIOD/SHARPENING(S), INTO/AT/ON/OF/LIKE (of) WHICH (of) RIB/EDGE/RIFFLE<sub>73</sub>(S) (of) ONE/ALONE OUT/FROM (of) POLYHEDRONS

  (THEY) CROSS/CUT (of) (to/for) FACE/BOUNDARY/PERIOD<sub>1</sub>(S) (of) (AN) OTHER AND/EVEN/TOO/---- (of) RIB/EDGE/RIFFLE<sub>72</sub>(S) (of) SECOND (THEY) CROSS/CUT (of) (to/for) FACE/BOUNDARY/PERIOD<sub>1</sub>(S) (of) FIRST.
- 4. FOUND (of) POINT/PERIOD/SHARPENING(S) (THEY) CONNECT/UNITE BETWEEN/AMONG (by/with/as) SELF/SELVES
  IN/TO/AT/ON/OF/LIKE (of) (to/for) (by/with/as) DEFINITE (of) (to/for) SUCCESSION/CONSISTENCY AND/EVEN/TOO/--- (THEY) GET BROKEN LINE, (RE) PRESENTING/IMAGINING \*REPRESENTING (by/with/as) SELF/SELVES
  LINE \*LINE-OF-INTERSECTION (of) GIVEN/DATA (of) SURFACES.
- 5. BESIDES//AT/WITH/BEFORE/IN-TIME-OF THIS (IT)(IS)POSSIBLE (to)CONNECT/UNITE BETWEEN/AMONG (by/with/as)SELF/SELVES (of)(to/for)PROJECTION(S) ONLY/AS-SOON-AS (of)THOSE (of)POINTS/PERIODS/SHARPENINGS, (of)GOTTEN IN/TO/AT/ON/OF/LIKE PROCESS/DISEASE<sub>53</sub>/SUIT<sub>68</sub> (of)CONSTRUCTION/FORMATION<sub>97</sub>(S), WHICH (THEY)LIE IN/TO/AT/ON/OF/LIKE (of)(to/for)(by/with/as)ONE/ALONE AND/EVEN/TOO/--- (of)(to/for)(by/with/as)THE-SAME (of)(to/for)FACE/BOUNDARY/PERIOD<sub>1</sub>(S).
- 6. 2) (THEY) DEFINE/DETERMINE/ASSIGN PIECES/SEGMENTS/(of) CUTTING-OFF (of) DIRECT/STRAIGHT(LINE) (S)/RIGHT12,

  ON/BY/ALONG/FOR/IN/--- (to/for) (by/with/as) WHICH (of) (to/for) FACE/BOUNDARY/PERIOD1 (S) (of) ONE/ALONE

  OUT/FROM (of) POLYHEDRONS (THEY) CROSS/CUT (of) (to/for) FACE/BOUNDARY/PERIOD1 (S) (of) (AN) OTHER;

  THESE PIECES/SEGMENTS/(of) CUTTING-OFF (THEY) ARE/APPEAR (by/with/as) LINKS/TEAMS (of) (to/for) (by/with/as) (BEING) GOTTEN AT/WITH/BEFORE/IN-TIME-OF INTERSECTION (of) POLYHEDRONS (of) (to/for) (by/with/as) BROKEN (of) (to/for) LINE(S).
- 7. IF PROJECTION (of) RIB/EDGE/RIFFLE<sub>73</sub>(S) (of) ONE/ALONE OUT/FROM (of) POLYHEDRONS NOT CROSSES/CUTS (of) (to/for) PROJECTION(S) (of) (to/for) FACE/BOUNDARY/PERIOD(S) (of) (AN) OTHER EVEN(IF) ON/IN/AT/TO/FOR/BY/WITH (of) (to/for) (by/with/as) ONE/ALONE OUT/FROM (of) PROJECTIONS (of) THESE (of)BODIES, THAT/THEN/OR GIVEN RIB/EDGE/RIFFLE<sub>73</sub> NOT CROSSES/CUTS (of) (to/for) (by/with/as) THIS
  (of) (to/for) FACE/BOUNDARY/PERIOD<sub>1</sub>(S).
- 8. HOWEVER INTERSECTION (of) PROJECTIONS (of) RIB/EDGE/RIFFLE<sub>73</sub>(S) AND/EVEN/TOO/--- (of) (to/for) FACE/BOUNDARY/PERIOD<sub>1</sub>(S) STILL/YET/MORE/ALSO NOT SIGNIFIES, THAT/WHAT/WHICH THESE RIB/EDGE/RIFFLE<sub>73</sub> AND/EVEN/TOO/--- FACE/BOUNDARY/PERIOD<sub>1</sub> ARE CROSSED OUT//(THEY) CROSS IN/TO/AT/ON/OF/LIKE
  SPACE/AREA.
- 9. AT/WITH/BEFORE/IN-TIME-OF SELECTION (of)AUXILIARY (of)PLANES/FLATNESSES, (of)NECESSARY FOR (of)FINDING/LOCATION(S) (of)POINTS/PERIODS/SHARPENINGS \*(of)POINTS-OF-INTERSECTION (of)RIBS/EDGES/-

- RIFFLES<sub>73</sub> AND/EVEN/TOO/--- (of) FACES/BOUNDARIES/PERIODS<sub>1</sub> IT-IC-NECESSARY/FOLLOWS (to) BE-GUIDED (by/with/as) DIAGRAMS/PIANS, (by/with/as) SHOWN/POINTED IN/TO/AT/ON/OF/LIKE §64: THIS IN-GENERAL SIMPLIFIES (of) CONSTRUCTION/FORMATION<sub>97</sub>(S).
- 10. IN/AT/ON -- CERTAIN/SOME OUT/FROM (of) (BEING) BROUGHT/CITED/REDUCED, (IS/ARE) LOWER/SHORTER//BELOW (of) EXAMPLES WE (LET-US/WE-SHALL) USE STATED (IS/ARE) HIGHER/TALLER//BEFORE GENERAL/COMMON/TOTAL (of) DEAGRAM/PIAN(S) (of) CONSTRUCTION/FORMATION97(S) (of) POINTS/PERIODS/SHARPENINGS \*(of) POINTS-OF-INTERSECTION; IN/TO/AT/ON/OF/LIKE (of) OTHER -- (WE) (SHALL/LET-US) MAKE-USE-OF (by/with/as) PRIVATE/-PARTICULAR/QUOTIENT1/PARTIAL1 (by/with/as) PECULIARITIES (of) DIAGRAM AND/EVEN/TOO/--- (LET-US/WE-SHALL) SIMPLIFY (of) CONSTRUCTION/FORMATIONO7(S).
  - 9 -- МИКРОБИОЛОГИЯ, рр. 297-9
- 1. INFECTION/CORRUPTION (by/with/as)NODULAR \*(by/with/as)NODULAR-BACTERIA COMES/ADVANCES/TREADS ESPECIALLY/PECULIARLY (IT)(IS)LIGHT/EASY(LY) AT/BY/WITH/FROM (of)PIANTS, (of)WFAKENED/LOGSENED

  (to/for)(by/with/as)NITROGEN/NITROUS (by/with/as)STARVATION, AND/EVEN/TOO/--- (IS)CONSIDERABLE/SIGNIFICANT(LY) (IS/ARE)MORE-DIFFICULT(LY) HAPPENS/COMES-FROM AT/BY/WITH/FROM (of)PIANTS, (IS)ENERGETIC(ALLY) (of)GROWING ON/IN/AT/TOO/FOR/BY/WITH (of)RICH (of)NITROGEN/NITROUS SOILS/GROUNDS.
- 2. PROCEEDING-FROM-THIS (of) FACT/CASE, (THERE) WAS (IS) EXPRESSED ASSUMPTION, THAT/WHAT/WHICH NODU-LAR \*NODULE-BACTERIA (THEY) ARE/APPEAR (by/with/as) PARASITE/IDLER<sub>81</sub> (of) LEGUMINOUS-PLANTS.
- 3. FURTHER, MORE CLOSE STUDY SHOWED/TESTIFIED<sub>68</sub>, THAT/WHAT/WHICH NOT ALWAYS (of)(to/for)BACTERIA (THEY)SHOW/DEVELOP ACTIVITY, SOMETIMES AND/EVEN/TOO/---- PLANT CAN (of)(to/for)(by/with/as)THEIR(S)//THEM (to)DISSOLVE/OPEN-WIDE INSIDE (of)CAGES/SQUARES/CELLS<sub>A</sub>/MESHES<sub>QL</sub>.
- 4. BUT/AND SINCE PRODUCTS/PROVISIONS (of) DISSOLVING..SOLUTIONS (of) BACTERIA PIANT, APPARENTLY, CAN (to) USE FOR (of) OWN (of) FEEDING/NOURISHMENT(S), THAT/THEN/OR (THERE) WAS (IS) EXPRESSED REVERSE/INVERSE/CONVERSE/RETURN ASSUMPTION, THAT/WHAT/WHICH NOT (of) (to/for) BACTERIA, BUT/AND SELF LEGUMINOUS-PIANT IS/APPEARS (by/with/as) PARASITE/IDLER81 (of) BACTERIA.
- 5. HOWEVER CHARACTER (of) INTERRELATIONS BETWEEN/AMONG (by/with/as) NODULAR \*NODULAR-BACTERIA AND/EVEN/TOO/--- (by/with/as) LEGUMINOUS/BEAN \*(by/with/as) LEGUMINOUS-PIANTS, APPARENTLY, SEVERAL/SOMEWHAT (of) (to/for) (by/with/as) (AN) OTHER.
- 6. IT(IS)POSSIBLE (to)CONSIDER/COUNT (IS)EXACT/PRECISE(LY) (to/for)(by/with/as)INSTALLED/ESTABLISHED/PIACED, THAT/WHAT/WHICH LEGUMINOUS-PIANT FURNISHES/DELIVERS (to/for)(by/with/as)NODULAR \*(to/for)NODULE-BACTERIA NON-NITROGENOUS ORGANIC (of)SUBSTANCE(S) ( (of)SUGAR(S) ), WHICH IN/TO/AT/ON/OF/LIKE CAGES/SQUARES/CELLS4/MESHES91 (of)BACTERIA ARE SUBJECTED/EXPOSED (to/for)WORKINGOVER(TIME) AND/EVEN/TOO/--- PARTIALLY/(by/with/as)PART/DEPARTMENT/FATE/UNIT97 (THEY)GO-OVER/CHANGE
  IN/TO/AT/ON/OF/LIKE NITROGEN/NITROUS \*NITROGENOUS-COMPOUNDS AT-THE-EXPENSE (of)(to/for)ASSIMILATION (of)MOLECULAR (of)NITROGEN.
- 7. PART/DEPARTMENT/FATE/UNIT<sub>97</sub> (of) NITROGEN/NITROUS (of) SUBSTANCES IS-CONSUMED (by/with/as) SELVES (by/with/as) BACTERIA FOR (of) CONSTRUCTION/FORMATION<sub>97</sub>(S) (of) WHITES/PROTEINS (of) CWN (of) BODY(S), BUT/AND PART/DEPARTMENT/FATE/UNIT<sub>97</sub> (of) (to/for) (by/with/as) THEIR(S)//THEM STANDS-OUT/- IS DISCHARGED/ISOLATED/ALLOTTED TO-THE-OUTSIDE/OUTWARD IN-THE-FORM//IN/AT/ON VIEW/SPECIES<sub>4</sub>/ASPECT<sub>62</sub> (of) SUBSTANCES, (of) (BEING) ASSIMILATED FURTHER (to/for) (by/with/as) LEGUMINOUS/BEAN \*(by/with/as) LEGUMINOUS-PIANT.
- 8. ONLY IN/AT/ON -- CERTAIN/SOME \*IN-SOME-CASES (of)INFECTION/CORRUPTION(S) NODULAR \*NODULE-BACTERIA NOT FORMS/EDUCATES INSIDE (of)NODULE (of)BACTEROIDS, NOT (WILL)ASSIMILATE(S)

  (of)NITROGEN AND/EVEN/TOO/--- AS-IF PARASITIZES ON/IN/AT/TO/FOR/BY/WITH PLANT/
- 9. (by/with/as)WHAT/WHICH/THAN/THE HOWEVER/THEN/ALSO SUCH PROPERTY/NATURE/RELATIONSHIP (of)BACTERIA IS DETERMINED/CONDITIONED?

- 10. ALONGSIDE/(by/with/as)ROW/SERIES (of)INVESTIGATIONS (THERE)WAS (IS)SHOWN/TESTIFIED<sub>68</sub>, THAT/WHAT/WHICH SYMBIOTIC CONTACT BETWEEN/AMONG (to/for)(by/with/as)LEGUMINOUS/BEAN \*(by/with/as)LEGUMINOUS-PLANT AND/EVEN/TOO/--- (by/with/as)BACTERIA IS INSTALLED/ESTABLISHED/PLACED ONLY THEN,
  WHEN IN/TO/AT/ON/OF/LIKE (to/for)MEDIUM/ENVIRONMENT/WEDNESDAY THERE-ARE EVEN(IF) TRACES NORTHWIND/(of)BORON<sub>3</sub>/DRILL<sub>91</sub>/CONIFEROUS-FOREST.
- 11. IN/TO/AT/ON/OF/LIKE ABSENCE (of) LAST/LATTER FIBROUS THREADS/FIBRES/SUTURES<sub>54</sub>, GOING/COMING/SULTING FROM/OF/FOR (of)(to/for)(by/with/as) VASCULAR \*(of) VASCULAR-SYSTEM (of) ROOT/RADICAL<sub>1</sub> TO(WARD)/FOR (to/for) NODULE, (THEY) DEVELOP/UNTWIST//ARE DEVELOPED/UNTWISTED (IS) INSIGNIFICANT/NEGLIGIBLE(LY) OR AT-ALL/COMPLETELY NOT (THEY) DEVELOP/UNTWIST//ARE DEVELOPED/UNTWISTED,
- 12. IN/TO/AT/ON/OF/LIKE SUCH CASE/CHANCE/OCCURRENCE (of)(to/for)BACTERIA ALTHOUGH (THEY)ARE(FOUND)/--- IN/TO/AT/ON/OF/LIKE ROOT/RADICAL<sub>1</sub>, BUT (THEY)GET FEW/LITTLE/(IS)SMALL (of)SUGARS, NOT
  (THEY)CAN (to)SYNTHESIZE IN/TO/AT/ON/OF/LIKE SUFFICIENT QUANTITY NITROGEN/NITROUS \*NITROGENOUS-COMPOUNDS, AS-A-RESULT//IN/AT/ON --- RESULT \*AS-A-RESULT-OF-WHICH AND/EVEN/TOO/--- (of)PLANT(S) OR AT-ALL/COMPLETELY NOT (THEY)GET OR (THEY)GET FEW/LITTLE/(IS)SMALL (of)TIED/CONNECTED/KNITTED (of)NITROGEN.
- 13. NON- SUCCESSFUL CONTACT IN/TO/AT/ON/OF/LIKE FIRST PERIODS (of) EDUCATION/FORMATION(S) (of)NODULE BRINGS/CITES/REDUCES<sub>1</sub> TO(WARD)/FOR (to/for)COMPLICATIONS (of)(to/for)(by/with/as)NORMAL
  \*(of)NORMAL-PICTURE.
- 14. THESE (of) COMPLICATION(S) AND/EVEN/TOO/--- (THEY) CREATED IMPRESSION AT/BY/WITH/FROM (of) MANY (of) INVESTIGATORS, THAT/WHAT/WHICH (of) (to/for) BACTERIA (THEY) ARE/APPEAR (by/with/as) PARASITES/-IDLERS81 (of) PLANTS.
- 15. SUCH POSITION/CONDITION/THESIS/REGULATIONS STILL/YET/MORE/ALSO MORE WAS-INCREASED, (by/with/-as)THE-FACT-THAT/THAT-WHICH IT-WAS-POSSIBLE (to)OBSERVE/SUPERVISE DISSOLVING (of)NODULAR \*(of)-NODULE-BACTERIA INSIDE (of)NODULE.
- 16. ONLY THEN/(by/with/as) SWEAT WAS CLARIFIED/ASCERTAINED, THAT/WHAT/WHICH THIS DISSOLVING MUST/SHOULD/OWES (to) BE (IS) ASCRIBED/POSTSCRIPTED NOT (of) (to/for) ACTIVITY (of) LEGUMINOUS/BEAN
  \*(of) LEGUMINOUS-PLANT, BUT/AND (to/for) PRESENCE IN/TO/AT/ON/OF/LIKE HIM/IT//MUTE (of) SEPARATE/SPECIAL (of) ULTRAMICROSCOPIC (of) BACTERIOPHAGES.
- 17. THEY (THEY) CAN (to) BE (ARE) REVEALED/DISCOVERED IN/TO/AT/ON/OF/LIKE CLOTHS/TISSUES<sub>4</sub> (of) ROOT/-RADICAL<sub>1</sub> AND/EVEN/TOO/--- EVEN (of) STALK/SHAFT<sub>91</sub>/BOLT, BUT APPARENTLY, NOT ALWAYS, SINCE SHVETSOVOI (IT) SUCCEEDED (to) SHOW/TESTIFY<sub>68</sub>, THAT/WHAT/WHICH BACTERIOPHAGE SOMETIMES (IS) IN-CAPABLE (to) PENETRATE IN/TO/AT/ON/OF/LIKE PLANT TOGETHER-WITH (by/with/as) BACTERIA, ALTHOUGH IS-KEPT IN/TO/AT/ON/OF/LIKE (of) (to/for) (by/with/SURROUNDING PIANT (to/for) MEDIUM/ENVIRONMENT/-WEDNESDAY.
- 18. (of)(to/for)BACTERIA HOWEVER/THEN/ALSO (IT)(IS)LIGHT/EASY(LY) (THEY)PENETRATED IN/TO/AT/ON/OF/LIKE PLANT AND/EVEN/TOO/--- IN-THE-PRESENCE (of)BACTERIOPHAGE, FORMING/EDUCATING BIG QUANTITY (of)NODULES.
- 19. ON-THE-BASIS (of) THESE (of) OBSERVATIONS/SUPERVISIONS IT-IS-NECESSARY/FOLLOWS (to) SUPPOSE, THAT/WHAT/WHICH ROLE (of) BACTERIOPHAGES IN/TO/AT/ON/OF/LIKE INTERRELATIONS BETWEEN/ (by/with/as) LEGUMINOUS/BEAN \*(by/with/as) LEGUMINOUS-PIANTS AND/EVEN/TOO/--- (by/with/as) BACTERIA MORE

  (IS) LIMITED, (by/with/as) WHAT/WHICH/THAN/THE WAS TAKEN/RECEIVED UP-TO-NOW.
- 20. THEREFORE ANSWER-TO-QUESTION, HAS (WHETHER) PLACE IN/TO/AT/ON/OF/LIKE INTERRELATIONS (of)BACTERIA AND/EVEN/TOO/--- (of) LEGUMINOUS/BEAN \*(of) LEGUMINOUS-PLANTS PARASITISM OR SYMBIOSIS,
  -- STILL/YET/MORE/ALSO NOT COMPLETELY (IS) CLEAR, BUT ASKS/SUGGESTS-SELF \*COME-TO-MIND.
- 21. ROW/SERIES (of)OBSERVATIONS/SUPERVISIONS (IS/ARE)QUICK(ER)//RATHER SPEAKS/SAYS IN-FAVOR (of)-
- 22. ON/IN/AT/TO/FOR/BY/WITH THE-SAME (THEY)SHOW/POINT AND/EVEN/TOO/--- (of)QUANTITY(S) (of)ASSIMI-

- IATED (by/with/as) LEGUMINOUS/BEAN \*(by/with/as) LEGUMINOUS-PLANTS (of) NITROGEN.
- 23. THEY (IS) CONSIDERABLE/SIGNIFICANT(LY) MORE/(IS/ARE) BIGGER, (by/with/as) WHAT/WHICH/THAN/THE THOSE,
  WHICH PLANT COULD(HAVE) (to)GET, IF (WOULD-HAVE/WOULD) ONLY DISSOLVED/OPENED-WIDE NODULAR
  \*NODULE-BACTERIA.
- 10 -- ОБШАЯ ГАНГЛОЛОГИЯ, рр. 130-2
  - 1. CHAPTER/HEAD 6.
  - 2. ROOTS/RADICALS<sub>1</sub> (of)(to/for)BRANCH(ES) (of)NTURAL-GANGLIA.
  - 3. SELF NAME "NEURAL-GANGLION" SPEAKS -- FOR -- THAT \*SPEAKS-FOR-THE-FACT-THAT EDUCATION/FORMATION, (BEING) DESIGNATED (by/with/as) THIS//(to/for) THESE (by/with/as) TERM/THERMIN, TIES/CONNECTS/KNITS BETWEEN/AMONG (by/with/as) SELF/SELVES GOING/COMING/SUITING IN/TO/AT/ON/OF/LIKE
    (of) DIFFERENT DIRECTIONS NERVE/NERVOUS CONDUCTORS.
  - 4. NEURAL-GANGLION -- SYNAPTIC ORGAN/AGENCY, THAT-IS IN/TO/AT/ON/OF/LIKE HIM/IT//MUTE HAPPENS/COMES-FROM CONTACT (of)NERVE/NERVOUS \*(of)NERVE-ENDING (of)PERICELLULAR (of)APPARATUS (of)(to/for)(by/with/as)ONE/ALONE (of)CAGE/SQUARE/CELL4/MESH91(S) WITH/FROM/ABOUT (by/with/as)BODY OR
    (by/with/as)SPROUT41/APPENDIX5/EXTENSION (of)(to/for)(by/with/as)(AN)OTHER (of)NERVE-CELL.
  - 5. BESIDES (of) THAT, OVER/THROUGH/WITHIN/EVERY(OTHER) KNOT/JUNCTION/BUNDLE/NODE  $_{41}$  /GANGLION  $_{51}$  /ASSEMBLY  $_{91}$  /JOINT  $_{94}$  (THEY) GO/COME/SUIT BUNDLES/WISPS/FASCICLES  $_{41}$  /BEAMS  $_{24}$  (of) FIBERS AND/EVEN/TOO/---SEPARATE/INDIVIDUAL (of) FIBER(S), WHICH NOT/NEITHER IN/TO/AT/ON/OF/LIKE (of) (to/for) (by/with/as) WHAT/WHICH/ANY APPARENT/(BEING) SEEN CONTACT WITH/FROM/ABOUT (by/with/as) ELEMENTS (of) KNOT/-JUNCTION/BUNDLE/NODE  $_{41}$  /GANGLION  $_{51}$  /ASSEMBLY  $_{91}$  /JOINT  $_{94}$  NOT (THEY) ENTER.
  - 6. ALL THIS INVOLVES THE-FACT-THAT/THAT-WHICH KNOT/JUNCTION/BUNDLE/NODE $_{41}$ /GANGLION $_{51}$ /ASSEMBLY $_{91}$ /-JOINT $_{94}$  IS TIED/CONNECTED/KNITTED (by/with/as)NERVE/NERVOUS \*(by/with/as)NERVE/TRUNKS WITH/FROM/-ABOUT (by/with/as)SURROUNDING (by/with/as)EDUCATIONS/FORMATIONS.
  - 7. (of) (to/for) CONNECTION/COMMUNICATION/BOND $_3$ /COUPLING $_{83}$ /BRACE $_{94}$ /LIAISON $_{97}$ (S) (of) KNOT/JUNCTION/BUNDLE/-NODE $_4$ 1/GANGLION $_5$ 1/ASSEMBLY $_9$ 1/JOINT $_{94}$  (THERE) ARE (USUALLY)/OCCUR (of) DUAL (of) ORDER; IN-THE-FIRST-PLACE, KNOT/JUNCTION/BUNDLE/NODE $_4$ 1/GANGLION $_5$ 1/ASSEMBLY $_9$ 1/JOINT $_9$ 4 (IS) TIED/CONNECTED/KNITTED WITH/-FROM/ABOUT (by/with/as) FORMING/EDUCATING (of) (to/for) (by/with/as) HIS/ITS//HIM/IT (by/with/as)-NERVE/NERVOUS \*(by/with/as)NERVE-TRUNES, ON/BY/ALONG/FOR/IN/--- (to/for) (by/with/as) WHICH WENT/-CAME/SUITED MOVEMENT/ADVANCE (of) (to/for) (by/with/as) HIS/ITS//HIM/IT (of) CAGE/CELL $_4$  (of) MASSES/-PASTES/PULPS AND/EVEN/TOO/--- WHICH (THEY) TIE/CONNECT/KNIT (of) (to/for) (by/with/as) HIS/ITS//HIM/-IT WITH/FROM/ABOUT (of) (to/for) (by/with/as) CENTRAL-NERVOUS-SYSTEM AND/EVEN/TOO/---, IN-THE-SECOND-PLACE, KNOT/JUNCTION/BUNDLE/NODE $_4$ 1/GANGLION $_5$ 1/ASSEMBLY $_9$ 1/JOINT $_9$ 4 (IS) TIED/CONNECTED/KNITTED WITH/FROM/ABOUT (to/for) (by/with/as) (BEING) INNERVATED (by/with/as)-ORGAN/AGENCY.
  - 8. BEHIND/BEYOND/FOR/AFTER/IN/AT/--- (by/with/as)FIRST (by/with/as)CONNECTIONS/COMMUNICATIONS/BONDS<sub>3</sub>/COUPLINGS<sub>83</sub>/BRACES<sub>94</sub>/LIAISONS<sub>97</sub> IS-HELD(BACK)/HOLDS(BACK) NAME (of)ROOTS/RADICALS<sub>1</sub> (RADIX),
    BEHIND/BEYOND/FOR/AFTER/IN/AT/--- (by/with/as)SECOND -- (of)BRANCHES (RAMUS).
  - 9. (IS) USUAL(LY) ROOT/RADICALS (IS) FUNCTIONAL(LY) (ARE) DEMARCATED; FOR-EXAMPLE, (THEY) EXIST: SENSITIVE/PERCEPTIBLE/SENSORY MOTOR, SYMPATHETIC ROOTS/RADICALS (fig. 27).
- 10. (UNI) FORM AND/EVEN/TOO/--- MAGNITUDE/QUANTITY (of) ROOTS/RADICALS, (IS) EXTRAORDINAR(IL) Y (THEY)-VARY.
- 11. FIRST-OF-ALL (ARE) COMMON SUCH CASES/CHANCES/OCCURRENCES, WHEN ROOT/RADICAL IS-ABSENT, THAT-IS KNOT/JUNCTION/BUNDLE/NODE $_{41}$ /GANGLION $_{51}$ /ASSEMBLY $_{91}$ /JOINT $_{94}$  (IS) DIRECT(LY) (IS) BRAZED/SOLDERED, WITH/FROM/ABOUT (to/for)(by/with/as) OWN (by/with/as) NERVE-TRUNK.
- 12. BUT, (IT) TURNS-OUT-TO-BE//IS EXERTED/GIVEN, THAT/WHAT/WHICH THIS ABSENCE ONLY SEEMING.

- 13. REALLY ROOTS/RADICALS<sub>1</sub> (of) KNOT/JUNCTION/BUNDLE/NODE<sub>41</sub>/GANGLION<sub>51</sub>/ASSEMBLY<sub>91</sub>/JOINT<sub>94</sub> ALWAYS (THEY)-ARE-PRESENT, BUT THEY (THEY) CAN OR NOT (to) GO/COME OUT BEHIND/BEYOND/FOR/AFTER/IN/AT/--LIMITS (of) NERVE-TRUNK, OR (to/for) (by/with/as) TIGHTEST/CLOSEST (by/with/as) FORM/WAY/IMAGE (to)-ADJOIN TO(WARD)/FOR (to/for) NERVE-TRUNK.
- 14. THIS AND/EVEN/TOO/--- LEADS/CONDUCTS/RAISES TO(WARD)/FOR (to/for)THE-FACT-THAT/THAT-WHICH SOME-TIMES ROOT/RADICAL<sub>1</sub> NOT (IS)ISOLATED/SEPARATED, NOT (IS)EXPRESSED IN-THE-FORM//IN/AT/ON VIEW/-SPECIES<sub>4</sub>/ASPECT<sub>62</sub> (of)INDEPENDENT (of)NERVE-TRUNK.
- 15. WHEREAS/MEANWHILE/BETWEEN-THAT, BY-MEANS//(by/with/as)WAY/PASSAGE/JOURNEY/TRACK<sub>93</sub> (of)SPLITTING(S)
  WITH/FROM/ABOUT (by/with/as)AID (of)ACIDS (IT)SUCCEEDS ALWAYS (to)DISCHARGE/ISOLATE/ALLOT
  BUNDLES/WISPS/FASCICLES<sub>41</sub>/BEAMS<sub>24</sub> (of)FIBERS IN/TO/AT/ON/OF/LIKE (to/for)THICKNESS/STRATUM<sub>73</sub>//(IS/ARE)THICKER/STOUTER (of)NERVE-TRUNK, SUITABLE/APPROACHING TO(WARD)/FOR (of)(to/for)(by/with/as)GANGLIAL (to/for)MASS/PASTE/PULP.
- 16. CASES/CHANCES/OCCURRENCES (of) APPARENT/(BEING)SEEN (of) ABSENCE (of) ROOTS/RADICALS<sub>1</sub> WERE-OBSERVED IN-THE-WHOLE-SERIES (of) KNOTS/JUNCTIONS/BUNDLES/NODES<sub>41</sub>/GANGLIA<sub>51</sub>/ASSEMBLIES<sub>91</sub>/JOINTS<sub>94</sub>, FOR-EXAMPLE, ON/IN/AT/TO/FOR/BY/WITH CILIARY (SVITZER, SPALTEHOLZ, HOVELACQUE, V. SOKOLOV AND/EVEN/-TOO/--- OTHERS), ON/IN/AT/TO/FOR/BY/WITH GANGL/ OTICUM (ROUSSET) AND-SO-FORTH.
- 17. FOR (of) CERTAIN/SOME (of) KNOTS/JUNCTIONS/BUNDLES/NODES  $_{41}$ /GANGLIA $_{51}$ /ASSEMBLIES  $_{91}$ /JOINTS  $_{94}$  VERY (ARE) CHARACTERISTIC EXTREMELY SHORTENED ROOTS/RADICLES (FOR-EXAMPLE, AT/BY/WITH/FROM GANGL. OTICUM), (by/with/ $_{48}$ ) WHICH HE/IT (IS) CONNECTED/UNITED WITH/FROM/ABOUT N. MANDIBULARIS, THE-SAME SHORT ROOTS/RADICALS ARE MARKED/NOTED ON/IN/AT/TO/FOR/BY/WITH KNOTS/JUNCTIONS/BUNDLES/-NODES  $_{41}$ /GANGLIA $_{51}$ /ASSEMBLIES  $_{91}$ /JOINTS  $_{94}$  (of) ROOTLETS/STUBS/BACKS (of) CRANIO-CEREBRAL (of) NERVES (V. SOKOLOV, A. TSVETKOV) AND-SO-FORTH.
- 18. (IS/ARE) MORE FREQUENT/THICK/RAPID(LY)//(to/for) THICKET ARE-OBSERVED ROOTS/RADICALS<sub>1</sub> (of) (to/for) ~ (by/with/as) DIFFERENT (of) LENGTH(S), WHEREIN SOMETIMES SIZE/DIMENSION/SCALE/METER<sub>62</sub> (of) ROOT/-RADICAL<sub>1</sub> (SO) MUCH (IS) CONSTANT/PERMANENT/DIRECT<sub>83</sub> FOR (of) DEFINITE (of) ROOT/RADICAL<sub>1</sub>, THAT/-WHAT/WHICH NAME (of) ROOT/RADICAL<sub>1</sub> IS-CHARACTERIZED (of) (to/for) (by/with/as) HIS/ITS//HIM/IT (by/-with/as) SIZE/DIMENSION/SCALE/METER<sub>62</sub>.
- 19. FOR-EXAMPLE, AT/BY/WITH/FROM (of)THE-SAME (of)CILIARY (of)KNOT/JUNCTION/BUNDLE/NODE<sub>41</sub>/GANGLION<sub>51</sub>/ASSEMBLY<sub>91</sub>/JOINT<sub>94</sub> BEHIND/BEYOND/FOR/AFTER/IN/AT/--- (to/for)(by/with/as)MOTOR (by/with/as)ROOT/RADICAL<sub>1</sub> (WAS)HELD(BACK) NAME (of)SHORT, BEHIND/BEYOND/FOR/AFTER/IN/AT/--- (to/for)(by/with/as)SENSITIVE/PERCEPTIBLE/SENSORY<sub>4</sub> -- (of)LONG.
- 20. TRUTH-JUSTICE//IT-IS-TRUE, ARE-OBSERVED CASES/CHANCES/OCCURRENCES, WHEN "SHORT" ROOT/RADICAL (IS/ARE) SHORTER "(of) SHORT" ( FIG. 28 ).
- 21. ON/IN/AT/TO/FOR/BY/WITH OWN (of)(to/for)WAY/PASSAGE/JOURNEY/TRACK $_{93}$ (S) ROOT/RADICAL $_{1}$  CAN (to)BE (IS)CONCEALED IN/TO/AT/ON/OF/LIKE SOME/ANY EDUCATION/FORMATION.
- 22. FOR-EXAMPLE, IT-WAS-NECESSARY (to)OBSERVE/SUPERVISE CASES/CHANCES/OCCURRENCES, WHEN LONG ROOT/RADICAL<sub>1</sub> (of)CILIARY (of)KNOT/JUNCTION/BUNDLE/NODE<sub>41</sub>/GANGLION<sub>51</sub>/ASSEMBLY<sub>91</sub>/JOINT<sub>94</sub> ( (of)EXTERNAL
  AND/EVEN/TOO/--- (of)MEDIAL \*(of)MEDIAL-PLEXUS ) TURNED-OUT-TO-BE/WAS EXERTED/GIVEN ON/IN/AT/TO/FOR/BY/WITH OWN (of)(to/for)WAY/PASSAGE/JOURNEY/TRACK<sub>93</sub>(S) (to/for)(by/with/as)EMBEDDED/IMMURED
  IN/TO/AT/ON/OF/LIKE THICKNESS/STRATUM<sub>73</sub> (of)COVERING/MEMBRANE<sub>51</sub>(S) (of)VISUAL/OPTIC<sub>5</sub> (of)NERVE.
- 23. SIMILAR/SUCH/LIKE (of) APPEARANCE/PHENOMENON/SYMPTOM<sub>53</sub>(S) (IT)(IS) NECESSARY (IS) THOROUGH(LY) (to)REVEAL/DISCOVER, SINCE (of)(to/for)(by/with/as)THEIR(S)/THEM NON-RECOGNITION CAN (of)(to/for)STORY//(to)LEAD/MOVE TO(WARD)/FOR (to/for)(by/with/as)INCORRECT/IMPROPER/IRREGULAR (to/for)DEDUCTIONS/OUTLETS<sub>9</sub>/DERIVATIONS<sub>1</sub>.