

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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THE APPRAISAL OF CONTENT IS TENTATIVE.  
(FOR KEY SEE REVERSE)

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Experiments with Dibasol in Plovdiv

- Supplies of Dibasol, presumably of Soviet origin, have reached the Hospital for Infectious Diseases in Plovdiv, but only in quantities sufficient for experimental purposes and not for general hospital use.
- Experiments with Dibasol have been strictly confined to Plovdiv. No hospitals or other medical institutions in other parts of Bulgaria have been entrusted with the preparation.
- Tests have been carried out on patients in the Plovdiv Hospital with the limited supply of Dibasol which is available. Issue of the drug is strictly controlled, and doctors entrusted with it have to sign for it and no doubt are obliged to keep accurate records of how it is used.
- The amount of Dibasol supplied by the Soviets to the Hospital at Infectious Diseases at Plovdiv in 1951 was sufficient for the treatment of only 15 cases. No further supplies have been forthcoming, and none are expected. (Date of information, 1951-1953.)

Results of Dibasol Treatments on Infantile Paralysis Patients

- Dibasol is an odorless, tasteless, water-soluble, light yellow powder, the chemical composition of which has not been made public. The method of preparation and first tests carried out with this compound, as well as the results of these tests, have

25 YEAR RE-REVIEW

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been submitted by Professor Lazarov and Candidate of Medical Sciences Rozin. Rozin reveals the singular peculiarity of Dibasol compound in its effect on the nervous system.

6. The compound has been obtained by an artificial (synthetic) method by Professors B. A. Porai-Koshitz, L. S. Efrosov, and O. F. Ginzburg.
7. Initial trials with rabid cats showed that Dibasol increases the reflex activity of these animals and at the same time produces a certain lowering of blood pressure and short excitation of breathing. A subsequent analysis of trials with various laboratory animals showed that this increase of reflex activity in case of rabid cats is not connected with the effect of the compound on the peripheral motive region of the reflective tract (path?).
8. Experiments with beheaded animals showed that Dibasol is a substance which acts on the nervous system.
9. The spinal cord of animals is the part most sensitive to the Dibasol compound, but at the same time, Dibasol has no visible effect on the centers of medulla oblongata and intermediate brain controlling the regulation and formation of motive activity. The compound has a weak toxic effect, and, when taken internally, gradually decreases in effect since it does not possess a tendency to accumulate.
10. All this information served as a basis for investigating the effects of the compound on humans.
11. Ergographic examinations of nine persons who took Dibasol internally showed that, compared with control experiments, the muscular activity increases one hour after administration of one Dibasol powder (reliability factor of 3.27).
12. Repeated experiments determined the effect of Dibasol on activity connected with maximum pace of motive effort. Nine persons undergoing investigation had to tap a telegraph key with the index finger during 15 seconds in an attempt to make the maximum possible number of taps.
13. Experiments with telegraph keys were carried out twice--before taking Dibasol powder and one hour after taking it. During control experiments (glucose 0.5), the work was equal to 34.9 percent (average of 11 experiments), one hour after taking; during experiments with Dibasol (0.005), the work was equal to 102.9 percent (average of nine experiments); while during experiments with prosamine, the work was equal to 106.9 percent (average of nine experiments).
14. E. I. Lyubina (a woman), studying the effect of Dibasol on some peculiarities of knee reflex of a healthy human being, tested Dibasol in eight cases and proved that, in a dose of 0.005, Dibasol, in comparison with control experiments (glucose 0.50), produces an increase of speed of muscular tension to a definite degree by 19.7 percent. This information is of a statistical nature (reliability factory equal to 3.16). A peculiar feature was the presence of a distinct stimulating effect on a number of regions of the central nervous system, and in particular on pia mater of large semispheres of brain, with an absence of analogous effect on formations of medulla oblongata and intermediate brain. A peculiar feature was also the increased working capacity in healthy human beings during some of the experiments, with a complete absence of any emotional excitation--insomnia, etc. In this case, Dibasol has been found to be a peculiar stimulant, the effect of which differs distinctly from the well-known effects of such stimulants as phenamine or caffeine.
15. Therefore, the idea appeared to be quite natural to test whether the substance under investigation might be able to increase the capacity for work under pathological conditions, when this capacity has been disturbed as a result of disease

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of the nervous system. The effect of Dibazol on the spinal cord, established by experiments on healthy animals, has led to the tests of Dibazol in the first instance in affections causing disruption of the nervous periphery. Such pharmacotherapeutic experiments were carried out on guinea pigs poisoned by tricresylphosphate (tests were carried out by K. V. Tsomaiya). As a result of poisoning, 27 animals developed flabby paralysis of the hind extremities and, in some cases, all four extremities. Eleven guinea pigs with the most serious clinical symptoms were subjected to treatment by Dibazol (dose 10 mg. per 1 kg. of weight, administered internally), and 16 guinea pigs were left without treatment for control purposes. Of the 16 guinea pigs left for control, 15 died and the functions of the remaining pig which had been damaged by poison, were not restored. Of the 11 guinea pigs subjected to Dibazol treatment, nine remained alive and two died; the functions affected by poisoning became almost completely restored in these guinea pigs. The data of this experiment was confirmed by a detailed electro-physiological investigation, which also confirmed fully the repeated experiments of analogous nature.

16. Employment of the compound at the Clinic in cases of nervous system affections had as its object to ascertain whether a single administration of Dibazol has an effect on temporary increase of working capacity, as was observed during experiments on healthy human beings. On certain days, patients received several Dibazol powders in doses of 0.005. Dynamometric or ergometric examination of the working capacity of patients was carried out. For control tests, patients were given powders containing 0.50 of glucose.
17. It was observed that even a single administration of Dibazol powder increased the temporary working capacity to a considerable degree. Greater and more progressive effect was observed at repeated administrations of Dibazol. This was observed particularly clearly in case of patients in a stage of recovery after infantile paralysis. Identical effect was observed in case of all patients of this group. Results of investigations on 29 patients served as a basis for the organization of wide clinical tests of Dibazol at first at the neurological clinic in Leningrad and later in other towns.
18. By April 1944, the number of patients who had passed a course of Dibazol treatment was 721, of whom 63% had poliomyelitis. The clearest effect was observed during the recovery stage after poliomyelitis. Observations made at first by V. M. Bykhovski in the nervous disease clinic of the Leningrad Pediatric Institute, under the guidance of Professor G. A. Aronovich, showed that in a number of cases the compound has a considerable clinical improvement effect on the condition of the patient. The effect of Dibazol on a patient in a residual period of poliomyelitis was studied at the Leningrad Scientific Research Institute "G. G. I. Turner" (consulting neuro-pathologist, Professor N. A. Krishov). The work was also under the general guidance of the late Director of the Institute, N. I. Shirman. Several teams of collaborators of this Institute, including neuro-pathologists and orthopedists, completed a careful study of effects of the compound. In a number of cases, new active movements reappeared and previously weakened movements were strengthened. These changes were accompanied (NOTE: from this place, the handwriting of the original Bulgarian text changes) by distinct changes in the motive chronic (motor timing), and likewise, in a number of cases in which no visible changes in the movements had previously been observed, movements have now been recorded ergographically. Information was obtained that in strength of its effect, Dibazol surpasses proserine and prosamine (mixture of proserine with phenamine). At present, Dibazol is employed with definite success in many neurological clinics of the USSR. According to the conclusions of the Commission for Combatting Poliomyelitis, attached to the Scientific Medical Council of the Ministry of Health of the USSR, the Dibazol compound gives in a considerable percentage of cases (up to 40-50 percent), a positive therapeutic effect to a greater or lesser degree. Many of the patients made and even greater improvement.

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Clinical improvement of patients as a result of administration of Dibasol was of a permanent nature, and in some cases, after repeated courses of Dibasol therapy, still greater improvement was observed. The adopted dosage (0.005) of Dibasol had no toxic effect whatever. Considerably increased dosage may, in certain cases, produce headache, dizziness, indisposition (or inclination to vomit), and lowering of blood pressure.

19. Dibasol has a number of advantages over proserine. As one of these advantages, it is necessary to mention first the absence of toxic effects. At present, it may be regarded as confirmed that Dibasol surpasses proserine by its greater therapeutic effect. A resolution of the Pharmaceutical Committee attached to the Scientific Medical Council of the Ministry of Health of the USSR of 29 October 1949 allows a wide employment of Dibasol which is manufactured on an industrial scale and issued by pharmacies on doctors' prescriptions.
20. Ivashentsov considers that favorable results have been obtained with Dibasol, and that these results give a basis for recommendation of a method of treatment indicated by Lazarev's experiments. He considers that the curative effect of Dibasol on poliomyelitis patients (in residual and recovery stages) is shown by the appearance and restoration of motive functions which had been absent or weakened as a result of disease. At first, the appearance of curative effect depends upon the nature, period, and intensity of pathological process. Sometimes the curative effect of the compound begins to be felt as soon as one or two hours after administration of a powder. In his opinion, the course of treatment with Dibasol consists of five to 10 administrations of the compound, one powder a day or every other day.
21. Dosages are as follows:
  - a. For children of less than one year of age, 0.001;
  - b. For children between one and three years of age, 0.002;
  - c. For children between three and eight years of age, 0.003;
  - d. For children between eight and 12 years of age, 0.004;
  - e. For children over 12 years of age, 0.005; and
  - f. For adults, 0.005.
22. It is recommended that the compound be administered during the interval between meals. A repetition of the course of treatment three or five months after the first course may yield additional curative effect.

Clinical Cases in which the Soviet Dibasol Compound was Used

23. Case No. 1, M. P. (initials of name), a child 10 months old from Brezovo village (N 42-21, E 25-04), Plovdiv Okoliya, Hospital List No. 12749, "kl." No. 1071 (probably "clinic No. 1071"), admitted to the Clinic on 9 October 1951, discharged on 29 October 1951.
  - a. (Extract) from anamnesis (case history): During 20 days, the child was restless, and suffered from diarrhea. During the last seven or eight days, the right leg began to hang, and the child was unable to stand on it. After an examination at a Childrens' Clinic, the child was sent to the Clinic and admitted with a diagnosis of infantile paralysis.
  - b. General status: b. o. (probably means normal).
  - c. Specific status: The tone of muscles of the right leg, mainly of the quadriceps muscle, was lowered considerably. Patellar and Achilles reflexes of the same leg were absent. The leg was hanging completely, and passive movements were possible in all joints. Active movements existed only in the toes.

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d. Paraclinical investigations:

- (1) Urine: albumen +/-; sediment - urates.
- (2) Blood: erythrocytes - 3100000. Haemoglobin - 85 percent. Leucocytes - 11400. "shtab" (rod nuclei) - 4. "seg" (segmented nuclei) - 60. lymph - 36.
- (3) Lumbar puncture: spinal fluid - rapid and flows out at pressure. "Pandy" (test for protein in spinal fluid) - /4/, "Pavl" (see Washington Comment) - /4/, "Riv" - /-/, "kl." (possibly "kletka", i.e., cell) - nil albumen - 42 mg.%, sugar - 55 mg. %, chlorides - 840 mg. %.

e. Treatment: Galvanic treatment of the right leg for 10 minutes daily during a period of 21 days. (Extract) from "dekursus" (clinical record): On the fifth day after admittance to the Clinic, the tone of muscles of the right leg, particularly of the quadriceps muscle of the leg, improved. Reflexes were absent, active movements only in the toes. On the thirteenth day, the tone of muscles and reflexes remained the same, but the child became able to bend the leg in the knee joint by about 30 degrees. A neurologist summoned for a consultation made the following statement: "setivnost" (possibly sensitiveness) - b.o.; ability to move - limited in the right leg. Tone of muscles - considerably lowered. Tendon reflexes in the right leg absent. Conclusion: - refers to monoplegia of the right leg.

f. Diagnosis: "Polomyelitis acuta anterior." In accordance with the required quarantine of 40 days, the child was discharged from the Clinic on the twenty-first day after admittance. The condition of the child was as follows: tone of muscles of the right leg lowered, particularly of the quadriceps muscle. Patellar and Achilles reflexes - absent. Active movements observed only in the toes of the leg, which the child was able to bend in the knee joint by about 30 degrees. The child maintained a sitting position. Was able to stand, but became tired quickly and bent the right leg in the knee joint.

g. Check-up examination No. 4046 at the "ambulatoriya," on 30 November 1951, showed the same neurological results as at the time of discharge from the Clinic. In form of clinical treatment, the patient was given 10 powders of Dibazol of 0.001. After taking the powders, the child was returned for a check-up on 12 December 1951, when the following was established (statement of mother): the child began to stand for longer periods, bending the right leg less frequently. The child attempted to get up unaided, supported it- self on its arms. Moved (see [redacted] Comments) more often, as the passing of water was more frequent than before taking the powders. Neurological status: The tone of muscles of the right leg, including quadriceps muscle, better; the child could stand upright for longer periods without bending the right leg. Was able to bend the right leg in the knee joint by about 90 degrees. In a standing position attempted to take steps, but was unable to do so. Reflexes were absent.

24. Case No. 2, P. G. V., a child of 21 months from the village of Krumovo (N 42-05, E 24-48), Asenovgrad Okoliya, Hospital List No. 9988, "kl." No. 827. Admitted to the Clinic on 9 August 1951 and discharged on 13 September 1951.

- a. From anamnesis: Four days before, the child's temperature rose. Three days after, the child's left leg became lame. On the fourth day, lameness of the left leg increased, and during the night the child lost the ability to move it, and became unable to turn around in bed. On the fifth day, brought in for an examination at the Childrens' Clinic, the child was sent to the Clinic with a diagnosis of infantile paralysis.
- b. From the general status, it is characteristic that the child occupied a passive position lying on its back in bed.

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- c. Specific status: The tone of lumbar muscles and quadriceps muscle of the left leg considerably lowered. Gluteal creases completely smoothed out. Active movements in the pelvic and thigh joint and knee joint completely absent. There was a clearly defined hyperesthesia and painfulness of the left leg. The child was unable to maintain an upright position even when sitting.
- d. Paraclinical investigations:
- (1) Urine: albumen--; sediment - sodium urates; 8-9 erythrocytes in the field of vision, one leucocyte in the field of vision.
  - (2) Blood: erythrocytes - 320000 (?), leucocytes - 8200, "yung" (see Washington Comments) - 10; rod-shaped nucleoli - 10; segs - 48; lymphocytes - 32.
  - (3) Lumbar puncture: spinal fluid - speedy and flows out at pressure. "Pandy" -/1/ traces, "Pavl" -/-/, "Riv" -/-/, albumen - 38 mg. %, sugar - 60 mg. %, chlorides - 1078 mg. %; "kl." - 180, mostly lymphocytes.
- e. Treatment: During eight successive days, the child received one cubic centimeters of cytotropine (sic) every day. Heterohaemotherapy (sic) - five days in succession, 30 cubic centimeters each day from mother. Warm poultices during four days. On sixteenth day after commencement of illness, the child received hot pack treatment ("nagrevka").
- f. From "dekursus": On the seventh day after admittance to the Clinic, the tone of muscles of the left leg was unchanged. The leg could be actively bent in the knee joint by about 10 degrees. Passive movements were free in all joints, but painful. Active movement of toes existed. The child was able to sit in bed. Reflexes of the left leg were absent. On the ninth day, the child was able to bend the left leg in the knee joint by about 20 degrees. On the nineteenth day, the tone of the left leg was a little better. Reflexes of the leg were absent. There were active movements of the toes. The child was able to stand upright on both legs and even move the left leg forward, during which, the leg described an archlike movement outwards. On the thirty-first day, the tone of the left leg was better. Reflexes were absent. The child was able to bend the leg in the knee joint by about 30 degrees. On the thirty-sixth day at the Clinic, the fortieth day after commencement of illness, the child was discharged from the Clinic with the following status: tone of the left leg, better; Patellar and Achilles reflexes absent; active movements of toes of the leg in existence. The child was able to bend the left leg actively by about 40 degrees. The left leg was colder than the right leg. The child stood upright and walked, but during walking threw the left leg outwards. The condition of the left leg has not changed until (possibly as of) 18 December 1951, and on 19 December 1951, the child was prescribed 10 Dibazol powders of 0.002 each in form of polyclinical treatment, by the Area Physician. On 29 December 1951, during a dispensary check-up, the following was established (statement of mother): After taking five powders, the child showed a desire to walk. During walking, the child was less tired and threw out the left leg to a lesser degree. The child urinated more often.
- g. Neurological status: After 10 days, the hyper-reflex action of the right leg was restored and slight reflexes of the left leg appeared. During walking, the left leg was thrown outwards less and was bent better in the knee and ankle joints. The patient was able to walk independently. The tone of muscles of the left leg was better, including the quadriceps muscle.
25. Case No. 3, K. I. K., a child three years and three months old, resident of the Rakovski area (N 42-03, E 25-35) of Dimitrovgrad, Hospital list No. 13659, "kl." No. 1179. Admitted to the Clinic on 29 October 1951 and discharged on 1 December 1951.

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- a. From anamnesis: Seven days before, the child had a high temperature and refused to eat. After three days, the temperature came down and the child calmed down. On the fourth day, wishing to get up from bed, the child fell down and it was discovered that it was unable to stand on its left leg, or to move the left leg. The district hospital at Khaskovo (N 41-55, E 25-32) sent the child with a diagnosis of infantile paralysis to the Clinic which admitted the child.
- b. From the general status, it is important to note that the child was taking up a fully relaxed position, lying on its back in bed.
- c. Specific status: The child was unable to maintain a standing or sitting position. The head remained drooping back and the child could not straighten up. The tone of the left quadriceps, lumbar and occipital muscles considerably lowered; gluteal creases of the left leg which was in a fully relaxed lying position were smoothed out. Patellar and Achillis reflexes of the left leg were absent. Active movements existed only in the toes of that leg.
- d. Paraclinical investigation:
- (1) Urine: albumen -/-; sediment - "b.o."
  - (2) Blood: erythrocytes - 3800000; leucocytes - 10600; "mladi" (see 25X1  
Comments) - 6; seg - 54; lymph - 40.
  - (3) Lumbar puncture: spinal fluid - speedy, flows out at increased pressure. "Pandy" -/+/; "Patl." -/+/- traces, "Riv." -/-; albumen -38 mg. %; sugar - 66 mg. %; chlorides - 740 mg. %; cells - 160, mostly lymphocytes.
- e. Treatment: Heterohaemotherapy from mother during four days 30 cubic centimeters daily. Warming (hot) poultices during eight days in succession. Vitamin B<sub>1</sub> during eight days. Fifteen days after commencement of illness, galvanic treatment of left leg for 17 minutes during 19 days and massage during 18 days. Dibazol was prescribed on the thirty-seventh day after commencement of illness in doses of 0.002 daily after meals, about 2-3 hours after dinner, during 10 days in succession.
- f. From "dekursus": On the eighth day after admittance to the Clinic, the child started to keep its head upright (straight) but was unable to stay in a sitting position. The condition of left leg showed no change. On the twelfth day after commencement of illness, the child was able to keep the head upright and to maintain sitting position. The child was able to bend the left leg in the knee joint by about 30 degrees. The reflexes of the left leg were absent. The tone of the quadriceps muscle was lowered. The consulting neurologist made the following statement: the child was crying and resisted examination and this made it impossible to establish detailed neurological status. An impression was created that the active movements of the left leg were restricted (limited) and the tone lowered. The tendon reflexes were absent. Conclusion: "poliomyelitis acuta anterior."
- g. On the sixteenth day from the beginning of illness, the child was able to bend left leg in the knee joint by about 60 degrees and in the pelvic and hip joint - by about 40 degrees. The reflexes were absent. The tone of the quadriceps muscle was lowered, but the gluteal creases became slightly defined. On the thirtieth day from the beginning of illness and twenty-eighth day after admittance to the Clinic, treatment with Dibazol started with doses of 0.002 per day, three hours after dinner. At the beginning of Dibazol treatment, the neurological status was as follows: reflexes in the left leg were absent; the tone of quadriceps muscle - lowered; the left leg could be bent in the knee joint by about 60 degrees and in the pelvic and hip joint - by about 70 degrees; the child was unable to walk.

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- h. On the twenty-seventh day (?) (on fourth day after commencement of Dibasol treatment) the child became able to walk, although able to move the left leg only slowly, bending and unbending it in the knee and pelvic and hip joints not more than the above-mentioned extend (60 and 70 degrees), but doing this without aid from other people. The tone of the quadriceps muscle was somewhat better. Slight reflexes in the left leg appeared. On the thirty-first day from admittance to the Clinic and the thirty-seventh day from the commencement of illness (NOTE: the count of days is all wrong) - and the eighth day after the start of Dibasol treatment, the condition was as follows: The child got up from bed independently and walked freely bending and straightening the left leg. The tone of quadriceps muscle was still better and the gluteal creases were very well outlined. The child did not get tired walking. The Patellar and Achillis reflexes in the left leg were slight. When the child was discharged from the Clinic on the fortieth day from the commencement of illness and eleventh day from the commencement of Dibasol treatment, the state of health was as follows: The tone of muscles of the left leg, mainly that of the quadriceps muscle was a little lowered. The reflexes of the right leg were higher and of the left leg - were normal. The child got up from bed unaided and moved about freely. The check-up lumbar function showed: "Pandi" - /+/-/ traces; "Riv" - /-/-/; "Pavl." - /-/-/; albumen - 16.5 mg. %; chlorides - 750 mg. %; "kletka" (cells?) - 0.
26. Case No. 4, N. R. G., a child of four years of age from the village of Krumovo, Asenovgrad Okoliya, Hospital list No. 12593, "kl." No. 1051. Admitted on 5 October 1951. Discharged on 11 November 1951.
- a. From anamnesis: Three days before, the child cried from pains in the stomach. On the next day, the pain spread to the left leg, but the child still walked about unaided. When it was decided to show the child to the doctor, it was found that the child had become very weak and was unable to stand.
- b. From the general status, it should be noted that the child took up a passive and fully relaxed position on its back in bed.
- c. Specific status: The tone of quadriceps muscle of the left leg, of the lumbar and occipital muscles greatly lowered. The left leg was completely powerless and took up any position given to it. Active movements existed only in the toes of the leg. Patellar and Achillis reflexes were absent. The child was unable to maintain a sitting position and fell to the sides. The tonsils were enlarged, full and reddish and clear.
- d. Paraclinical investigations:
- (1) Urine: albumen - /-/-/; sediment - "b.o."
  - (2) Blood: erythrocytes - 4230000; leucocytes - 27000; seg - 56; rod-shaped nucleoli - 6; lymphocytes - 32; monocytes - 6.
  - (3) Lumbar puncture: spinal fluid - speedy and flows out at pressure. "Pandy" - /+/-/, "Pavl." - /-/-/, "Riv" - /-/-/; "kletka" (cells) - 120, mostly lymphocytes.
- e. Treatment: Heterohaemotherapy from mother, 20 cubic centimeters per day during five days in succession. Vitamin C during 20 days, five cubic centimeters per day. Massage starting on fifteenth day after commencement of illness to the day of discharge from the Clinic, during 26 days.
- f. From the "dekursus": On the thirteenth day after admittance to the Clinic (sixteenth day from the commencement of illness), the neurological status was as follows: the tone of muscles of the left leg greatly lowered. Patellar and Achillis reflexes absent. The tone of lumbar muscles also greatly lowered and the child was unable to maintain sitting position. The tone of occipital

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muscles better and the child was able to keep its head upright. On the twentieth day after admittance to the Clinic (twenty-third day of illness), the tone of quadriceps muscle was greatly lowered. The reflexes in this leg were absent. The gluteal creases were smoothed out. Active movements were observed only in the toes. The child was unable to maintain sitting position. The neck would be kept in upright position. On the twenty-eighth day of the illness, the summoned consulting neurologist made the following statement: "setivnost" - "b.o."; ability to move: in neck, lumbar region and left leg, active movements limited. Muscular tone in same regions lowered. The knee and Achillis reflexes absent on the left leg. The remainder - "b.o." Conclusion: "poliomyelitis acutna anterior." On the thirty-third day of the illness, the tone of lumbar muscles and left leg was better. The child was able to sit and with aid was able to get up from bed and to make attempts to walk, in which the left leg was thrown outwards. On 11 November 1951, the fortieth day of the illness, the child was discharged from the Clinic with the following neurological status: the tone of occipital and lumbar muscles was good. The tone of quadriceps muscle was better, but still remained lowered. The child was able to walk leading on both arms and throwing out the left leg. On 18 December 1951, during check-up examination, the state of health of the child was recognized to be the same as at the time of discharge from the Clinic. The area physician gave the child 10 Dibazol powders of 0.003 in form of polyclinical treatment. After 10 days, on 29 December 1951, the following was ascertained (statement of mother): Four days after starting to take the medicine, the child was able to walk longer periods with light outside aid, supporting itself on one arm. The child urinated more often. Neurological status: the child was able to walk by slightly supporting itself with fingers of its right hand, and throwing its left leg outwards. The tone of quadriceps muscle of the left leg was better. The reflexes of the left leg, Patellar and Achillis, were absent. During a second check-up examination on 9 January 1952, no change in state of health was observed, apart from the statement of mother that child was walking for longer periods and did not get tired.

27. Case No. 5, A. M. A., 1-year-old child from Ivaylovgrad (N 41-33, E 26-07), Hospital list No. 44373, "kl." No. 1258. Admitted to the Clinic on 15 November 1951. Discharged on 20 December 1951.
- a. From anamnesis: Three days before, the child was unwell. There were indications of tonsillitis ("angina"), with high temperature. On the following day, the temperature dropped. On the third day, while dressing the child in the morning, the mother saw that the child could not stand upright and step on the right leg. The child was taken to the District Hospital at Khaskovo and from there to the Clinic.
  - b. From the general status: "b.o."
  - c. Specific status: the tone of quadriceps muscle of the right leg lowered. Gluteal creases smoothed out. Active movements of the right leg remained only in the toes. The tone of quadriceps muscle of the left leg lowered. In the left leg, active movements remained only in the toes. The left leg could be bent in the knee joint only to the extent of about 30 degrees. The child was unable to maintain sitting position. The Patellar and Achillis reflexes on the right leg were absent and on the left leg were weak.
  - d. Paraclinical investigations:
    - (1) Urine: albumen -/-; sediment - b.o.
    - (2) Blood: erythrocytes - 4170000, leucocytes - 7600, rod-shaped nucleoli - 6, seg - 56, lymphocytes - 36, monocytes - 2.
    - (3) Lumbar puncture: spinal fluid - speedy, flows out at increased pressure. "Pandy" -/+/, "Riv." -/-/, "Pavl." -/±/ traces; "kletka" - 170, mostly lymphocytes; albumen - 28 mg. %, chlorides - 860 mg. %, sugar - 62 mg. %.

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- e. Treatment: Heterohaemotherapy 30 cubic centimeters per day during five days from father. Vitamin B. Vitamin C. "Kortichen" syrup made up of cytotropine during eight days and Dibasol, the employment of which will be described in detail.
- f. From "dekursus": On the second day after admittance to the Clinic (sixth day after commencement of illness), the child was able to sit in bed. On the eleventh day, the child was able to maintain sitting position. Active movements in knee joints: in the left leg - bending by 40 degrees and in the right leg - bending by 60 degrees. Active movements in the pelvic and hip joint, 60-70 degrees. The child was unable to stand upright. The child started to receive daily one powder of Dibasol of 0.001 three hours after dinner. On the thirteenth day of the illness (third day after start of Dibasol treatment), the consulting neurologist made the following statement: active movements in legs, mainly in the right leg, limited. The tone of muscles - lowered. Tendon reflexes in the right leg absent entirely and in the left leg hardly noticeable. Conclusion: "poliomyelitis acuta anterior."
- g. On the fourteenth day of the illness and fourth day after start of Dibasol treatment, the child was able to sit ("stand" was probably meant in this case) properly on its legs. With the aid of others, the child was able to move the leg slowly forward, but was easily tired. The tone of quadriceps muscle of the right leg was better. The reflexes showed no change. Gluteal creases on both legs were more clearly defined, particularly on the left leg. On the seventeenth day of illness and seventh from the start of Dibasol treatment, the child was able to move legs freely, but the right leg more slowly. The tone of muscles of both legs, particularly of the left, was better. The reflexes of the left leg were present, and those of the right leg were defined weakly. On the twenty-ninth day of illness, the tone of muscles of the left leg was good, but that of the right leg was still lowered. The gluteal creases had normal aspect. The child was able to walk freely, only slightly supporting itself with fingers of the left hand. The reflexes were without change. On the twenty-seventh day after admittance to the Clinic (thirty-first day of illness) and ninth day after start of Dibasol treatment, repeat treatment with Dibasol was started - daily one powder of 0.001, during 10 days. On 20 December 1951, the fortieth day of illness, the child was discharged in the following state of health: tone of muscles of the left leg, as well as the reflexes, normal. Tone of muscles of the right leg, particularly that of the quadriceps muscle, lowered. The child was able to sit freely and to walk well, but bent its right leg in the knee joint more energetically (with more force or effort) than the left leg, and required slight support when walking. Reflexes of the right leg were absent.
- h. During the check-up examination at the dispensary on 4 January 1952, the following was established: increased reflexes on the left leg and indications of reflexes in the right leg, with still more clearly expressed tone of muscles on the left leg. The child was able to move the right leg well, but threw it slightly outwards. When walking, was supporting itself with one hand.
28. Case No. 6, S. R. Sh., a child of 15 months from Plovdiv, Hospital list No. 10638, "kl." No. 888. Admitted on 24 August 1951. Discharged on 2 October 1951.
- a. With regard to the specific status and treatment, the present case is identical with Case No. 1.
- b. On 12 December 1951, the following neurological status was established and was identical with the status at the time of discharge from the Clinic: the tone of muscles of the left leg lowered, mainly that of the quadriceps muscle. Patellar and Achillis reflexes expressed weakly. The child was able to bend

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the legs in pelvic and hip joint - the left leg by about 40 degrees. When walking, the child threw the left leg outwards. The child was given 10 Dibasol powders of 0.002 during 10 days in succession as polyclinical treatment. During a check-up examination on 31 December 1951, the following was established: (statement of mother) : after taking the sixth powder, the child started walking more and became less tired; when walking threw the left leg no longer so much outwards. Urinated more and oftener. Neurological status: the tone of quadriceps muscle of the left leg was better. There were indications of Patellar and Achillis reflexes of the left leg. The child was walking better, bent the leg better in the knee joint and threw the leg less outwards (sideways).

29. Summary

29. Analyzing the above cases, we come to the following conclusion regarding the effect of the Soviet preparation Dibasol, employed during the convalescent period in infantile paralysis:
- a. In some cases, Dibasol gave very good results, in others - just good results, and in some cases - weak results, depending upon the condition (state) of paralysis and on the date of the illness that treatment with the drug was instituted), i.e., apparently dependent on the degree of pathological process setting in in the grey matter of the spinal cord. This conclusion is analogous with the opinion of Ivashentsov.
  - b. In all cases, the muscular force increased and muscular tiredness decreased.
  - c. The existing reflexes were improved and the reflexes which had disappeared returned.
  - d. In some cases, reflexes of sound extremities, or of those affected by disease only slightly, were increased.
  - e. Almost in all cases, frequency of urination was increased, as well as the quantity of urine secreted, the fact which had not been noted by Soviet authors.
  - f. There were no cases in which patients were unable to take Dibasol, or in which toxic effect had appeared.

Comment: The following is a brief summary of some terms which were only partially explained or identified above:

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- a. "b.o." - probably means "normal."
- b. "sed" - sediment in urine.
- c. "shtab" (stab) - immature polymorphonuclear leucocytes.
- d. "seg" - mature polymorphonuclear leucocytes.
- e. "Pandy" - test for protein in spinal fluid.
- f. "Patl" (also noted as "Pavl") and "Riv" - possibly abbreviations of Polish words: sugar - chlorides - acid - base - or blood, any of which could fit here. Since determination of albumen is one of the results from "Pandy" test, if the parallel can be drawn, "patl" may refer to sugar and "riv" to chlorides.

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- g. "kl." - could logically be "kletka" (cell).
- h. ambulatoriya - central place of treatment (1) to which patients come (ambulate) for treatment or (2) in which the patients being treated are ambulatory.
- i. jung (could be "yung" in Polish) - These are the most immature leucocytes. Their presence indicates extremely severe infection.
- j. rod-shaped nucleoli - These are the "stabs" mentioned in "c" above.
- k. "Nagrevka" - the use of "nagrevka" (burn) as here used "on the sixteenth day" undoubtedly refers to the commencement of hot pack treatment. This is a good polio treatment usually commenced on the fourteenth day and consists of placing heated felt pads (hot packs) on muscles involved.
- l. anamnesis (anamesis) - case history.
- m. creases - good technical term - when modified by such words as gluteal, axillary. Correct explanation is "folds."
- n. "mladi" (see paragraph 25 d 2) - possibly means monocytes.
- o. "dekursus" - clinical record.

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