

Subject: O. Bilanluk of Swarthmore, Pa [ ] [ ]  
His trip to the Soviet Union and June early July 1965

Date: 2 Nov 1965

Source: *decom 10/29*

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NAZI WAR CRIMES DISCLOSURE ACT  
DATE 2007

1. Subject went to the Soviet Union together with his wife via Sofia, Bulgaria, and after having visited Kiev, Yalta, Odessa and Lviv returned to Vienna, Austria, via Przemyśl and Warsaw. This was their honeymoon trip and on their way from the socialist block they also spent some time in Western Europe. The trip was arranged by Globe Travels of Philadelphia, Pa. In Sofia where they had arrived by plane, they spent one week and then proceeded, again by plane, to Kiev. Owing to some error in Globe Travels' timetables they arrived in Kiev a few days in advance of their schedule, in the second half of June 1965. They flew together with a Bulgarian Delegation to Kiev and together with its members were brought to hotel Dnipro in Kiev. During the passport control at the Kiev Airport one of the custom officers noticed that they were arriving several days too early but after he presented the case to his superior, the latter said Pust (Let go), and Subject and his wife joined the Bulgarian group. Incidentally, during the control of passports of Bulgarians, one of them must have had an old photograph in his passport or at least not a very good one anyway and the custom officers made some sort of interrogation to identify the man. Finally, the leader of the Bulgarian group had to vouch for him.

At Dnipro hotel in Kiev Subject did not mention anything about his too early arrival and registered as a normal tourist. They had 1st class tour. Only after a few days, by the time their vouchers were valid at the Inturist, Subject notified Inturist official at the Dnipro about it. There was quite a consternation, they tried to reproach Subject for "having caused them overlook this matter" but finally asked him not to mention it to anybody and enjoy his stay in Kiev.

Subject stayed in Kiev for 7 days or so, then went by plane to Simferopol, from there by car to Yalta, then by sea to Odessa and from Odessa by plane to Lviv. From Lvov to Przemyśl they took a train. While in Przemyśl they decided to go to Lemky region and made about 70 km by foot in the region south <sup>west</sup> of Sanok. The entire area is a huge ruin, vilages burned down still in 1940's and with no sign of reconstruction.

In Lviv Subject stayed for 7 days or so, at other places 1-2 days or just passed through, as in Odessa.

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2. In Kiev Subject was invited by V.V. TOKAREVSKY, Docent, aged 30-35, Ukrainian, specialist in nuclear spectroscopy to their nuclear <sup>Physics</sup> Center, by car about 20 minutes out of town on a hill where he was introduced to Prof NEMETS O.F. aged over 50, and ZAIKA N.I. aged 35, Ukrainian also Docent. ZAIKA and TOKAREVSKY were with their wives. ZAIKA's wife is Russian. NEMETS introduced himself as NIMETS and all three took pains to look everything "very Ukrainian!" As already has been mentioned in Notes of Oct 14, 1965, para 9, the cyclotrons shown to Subject were on the level of those of Uni of Illinois ' of 1950's. (N.B. Subject stated Prof's name as NEMTSOV and not NEMETS, and corrected it later on after having checked with one of his publications.)

After some reserved observations of Subject about their cyclotrons, TOKAREVSKY later on indicated, that Kiev was getting much less in financial means than other centers because it was not directly concerned with the military. According to Subject all the time there were quite a few civilian types loitering around and obviously doing their duty as guards. Also admission to and inside movements could be made only by showing proper pass. Subject did not see, however, military uniforms.

NEMETS seemed to Subject to be more administrator than scholar. TOKAREVSKY and ZAIKA are good scholars, very well off, interested mainly in their research, showed no political interest, except for their showing off of "Ukrainianism" that was obviously pre-arranged in advance. As to NEMETS, as far as Subject was aware of, he was also a capable scholar but his main function seemed to be that of a party controller.

All three - NEMETS, TOKAREVSKY, and ZAIKA - put to Subject some questions about American cyclotrons that evidently were aimed at getting information from him on the topic.

3. One evening, at the dinner table in Dnipro hotel, Subject met a Soviet pilot, also a glider amateur, in company of an elderly engineer. As Subject is also a glider amateur, he has had no problem in making friends with the Soviet, moreover after a few glasses of vodka. Whereas the engineer was very reserved and cautious, the pilot did not hide his delight about meeting his American "glider-friend" and finally invited Subject to his address. He was living somewhere in the suburb and it took Subject more than an hour to get there next day. Subject changed bus several times and finally when he reached his destination, a lady told him at the door that Comrade so-and-so had suddenly to leave for Moscow very early in the morning

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Subject, unfortunately, threw away pilot's address and could not remember his name. On the way to the suburb he saw such slums that he "was really surprised at".

4. Subject thought he was not under surveillance though, of course he could not be sure. He went to stores, stolovayas, movies, theaters. He asked questions in the street, in hotels, on the plane but did not ask anybody for his address or name.

During his stay in Kiev he went to the concert of Veryovka's wife. Her Ensemble had just returned from East Germany and was performing in Kiev. Subject was struck by the fact that Ukrainian songs, mainly old Ukrainian songs, enjoyed much greater applause than the others. In this Subject sees a kind of manifestation of Ukrainian patriotism which according to him absolutely exists even in such a russified city as Kiev. Judging by what he was told by many people in Kiev his conclusion is that Ukrainian element is somewhat like an iceberg - you cannot see much of it above surface but there is much more of it underneath.

5. Yalta and Odessa seemed to Subject almost completely russified. Lviv - "like during Polish rule with one change, namely that Poles have been substituted now with Russians". In Lviv Subject stayed at the Inturist hotel. In Lviv he met a former schoolmate of his, now an engineer (of constructions), and his uncle from a village near Trembovka, Tempol oblast. With the uncle came a teacher to whom Subject had an opportunity to talk too.

According to what Subject was told by his uncle and mainly the teacher there is a clear cut division between "us", meaning Ukrainian masses and their intelligentsia of lower socio-economic standing and "they", meaning Russians and their well situated, well paid Ukrainian collaborators. They don't mix socially and avoid each other.

The teacher had, however, a few kind words for "collaborating intelligentsia" admitting that they were making some efforts to strengthen Ukrainian potential but in his view only because otherwise they would lose their "warm jobs" to Russians. In short, their Ukrainianism assures them their jobs as long as Russians need them.

6. In Lviv Subject met Prof GLAUBERMAN author of book on quantum mechanics. GLAUBERMAN Aba Yukhymovich, born 1917, Jewish, came to Lviv University from Leningrad. He is a great capacity in his

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field and some of his books Subject used for his lectures in this country. No wonder it was quite interesting for him to see Glauber and he asked Inturist to introduce him to the Professor. With a female guide Subject went to the University, met there a few physicists and mathematicians among them also a Prpf. LOPATYNSKI, and ~~xxx~~ Prof. Glauber, himself. With the latter, accompanied by the guide who did not leave them for a moment, they went to the Park of Culture and talked for an hour or so on the bench. Their talk was purely about quantum mechanics and obviously the guide had not the slightest idea what they were discussing. On the way to the park GLAUBERMAN talked with Subject in Ukrainian and Russian with the guide. At one moment the guide whispered to Glauber that he should talk to her in Ukrainian too, and Professor switched over at once into Ukrainian. Glauber made a very positive impression, both as scholar and individual. Very intelligent, polite, tactful, full of dignity and personality.

7. According to the teacher Subject met in Lviv recently there increased a tendency to russify the countryside by introducing into villages Russian specialists in agriculture and in administrative posts. At the same time there is a remarkable improvement in the standard of living, in both, the countryside and in cities. Prior to Khrushchev's removal the situation was really bad and there was danger of countrywide protests and strikes. Kosygin and Brezhnev saved the the food shortage from developing into a real crisis. The household plots increased in many kolhosps in such proportions that peasants would never expect before.

8. The teacher, the engineer and Subject's uncle as well as other people Subject met privately, all stressed the necessity and purposefulness of increased visits of emigres to the Ukraine. As they put it, "even your presence itself, speaks against the regime and helps us tremendously". Subject's uncle took from him ~~the~~ a pencil with Shevchenko's imprint (issued during Shevchenko ceremony in Wash., D.C.) and according to uncle's and others' comment they (in the Ukraine) regarded the erection of Shevchenko Monument in the capital of the USA as a very great and very important achievement.

9. From talks with young people in Kiev and Lviv Subject inferred that what they mostly liked to read was science fiction, adventure and spy stories, and above all any foreign novels and publication.

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Also poetry by young poets, their contemporaries, and by old classicists.

All foreign films seem to be very popular, particularly American and West European. Subject noticed that there were quite a few Indian films shown in Lviv and Kiev with a very sentimental stories and those were mostly frequented. Subject and his wife saw one or two films of that kind themselves and were surprised by the emotionalism with which the public was reacting to this simplified sentimental stuff. At one moment when Subject's neighbors were using their handkerchiefs to wipe off their tears Subject and his wife could hardly control themselves from bursting out into laughter from what they were seeing on the screen. In this respect Subject thought that this was some kind of "emotional or rather psychological underdevelopment" of Soviet society.

9. Dr M.O. BILANUK of Swarthmore Court, Apt. D2 (354 Swarthmore Ave), Swarthmore, Pa, Tel. Home (215) KI 4-7034, Prof of Physics at Swarthmore College, Tel. Office KI 3 - 0200 Ext. 236 visited Ukraine via Bulgaria end June, early July 1955. He spent 8 days in Kiev, visited for short time (1-2 days) Yalta, Odessa, 7 days in Lviv and went by train from Lvov to Przemysl and then to Warsaw. In Kiev he was invited by Docent TOKAREVSKYI, fnu, aged 30-35 to visit their cyclotrons and in company of Prof NEMTSOV and Docent ZAIKA, aged 35 went by car (about 20-30 minutes) to their installation outside of Kiev. NEMTSOV and his colleagues tried to impress B. with their "Ukrainianisms", so much that NEMTSOV had even "changed" his name to NIMETS. The cyclotrons shown to B. were in his opinion on the level of American ones (Uni of Illinois) of 1950's. NEMTSOV is a specialist in nuclear spectroscopy but seems to be rather a scientific administrator than scholar.

*from 14 Oct 65  
report from  
4/59*

## THE LEVEL EXCITATION PROBABILITIES IN NUCLEAR REACTIONS

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Qualitative results about the excitation probabilities of different types of levels can be obtained : i) by comparison of the excitation probabilities of level of different nature in the same reaction ; ii) by comparison of the excitation probabilities of levels of the same nucleus in different reactions. Some examples, showing the possibility of finding the level nature from the reaction cross section, can be taken from the abundant data on (d, p) and (d, d') reactions at 13.6 MeV.

1. Experimental reduced width is usually represented as  $S\theta_0^2$ . Using  $\theta_0^2(n, l)$  data from ref. [1] one can find the spectroscopic factor  $S$ , which can be compared with theoretical values, calculated using wavefunction from different models. It can be seen, for example, that there is a good agreement between experimental  $S$  values (1.2, 0.65, 0.33) and the theoretical ones (1.0, 0.66, 0.33), calculated from the shell model for ground state transitions of  $Zr^{91}$ ,  $Zr^{92}$  and  $Zr^{95}$  nuclei. For  $Zr^{91}$ ,  $Mo^{95}$  and  $Mo^{97}$  nuclei with  $J_{ground} = 5/2 +$  the transitions to the first excited states of residual nuclei ( $J = 2 +$ ) are allowed with momentum transfer  $l_n = 0, 2$  and 4. However, while in the corresponding proton angular distributions for the first of above nuclei  $l_n$  is 2, for the last two nuclei mixture of  $l_n = 0$  and  $l_n = 2$  appears (fig. 1a). The  $l_n = 0$  contribution shows the relative weakening of shell model selection rules due to an increase of number of extra neutrons beyond a closed shell and an increasing role of kinematic selection rules.

2. The excitation of rotational states was studied in the  $Si^{28}(d, p)Si^{29}$  reaction. Data for levels of  $Si^{29}$  (ground state, 1.28 MeV, 2.03 MeV, 3.07 MeV) show a very good agreement between the experimental values of  $S$  (0.65, 0.8, 0.14, 0.07) and those calculated [1] with the collective model wave functions (0.7, 0.9, 0.12, 0.09).

3. The (d, p) reaction studies on  $Ge^{73}$ ,  $Se^{77}$ ,  $Cd^{111, 113}$  and  $Sn^{117, 119}$  isotopes show that the ratios of the one-phonon level reduced widths to the no-phonon level ones are respectively 0.13, 0.067, 0.27, 0.43, 0.21, 0.18. This is in good agreement with the theoretical predictions of Satchler [2].

4. The excitation of collective and single-particle states in even nuclei can be studied simultaneously due to the presence of an energy gap of the order of 2-3 MeV. The existence of the gap is seen distinctly when comparing the proton spectra from (d, p) reactions on even and odd tin isotopes (fig. 1c). In particular case of (d, p) reaction on  $Cd^{111}$ ,  $Sn^{117}$  and  $Sn^{119}$  isotopes the main contribution in the gross structure peak with  $Q = 4$  MeV (which includes the lowest two-quasiparticle states) in the angular range  $0^\circ-10^\circ$ , comes

from the  $(S_{1/2})^2$  state, i.e. the momentum transferred is  $l_n = 0$  (fig. 1b). The same momentum is transferred at the no-phonon excitation  $0 +$  with  $Q = 7$  MeV (fig. 1b). The ratios of the absolute cross section values  $\sigma_{a.p.}/\sigma_{coll}$  in the above angular region for these two peaks are respectively 44, 10 and 16 for  $Cd^{112}$ ,  $Sn^{118}$  and  $Sn^{120}$ . Thus we see that the single-particle level excitation probability is by an order of magnitude higher than that of the collective level, being the neutron single-particle states are preferably excited [3][4]

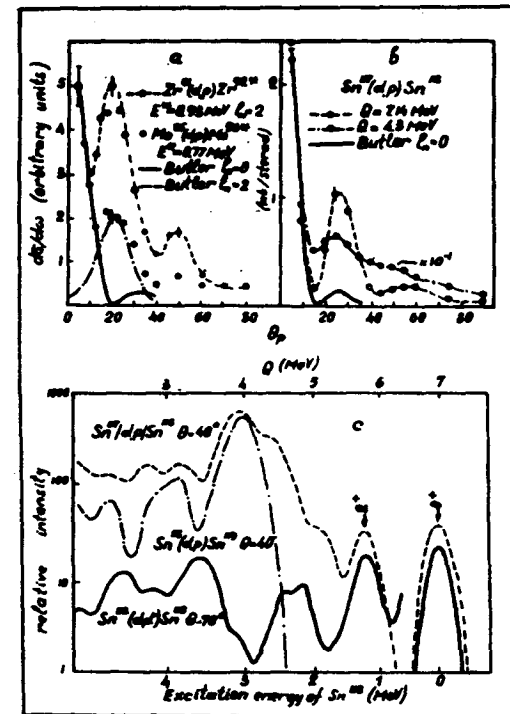


Fig. 1

5. So far as the states inside and outside the energy gap are of different nature, one may expect a considerable difference between the shapes of the spectra of even nuclei, observed in (d, p) reactions and in inelastic scattering of deuterons (see for example  $Sn^{118}$  spectrum on fig. 1c). The relative intensity of the  $E^* = 1.2$  MeV ( $2 +$ ) peak in proton spectrum is the lowest, while in deuteron spectrum it is the highest. The one-phonon  $2 +$  level excitation cross section ratios for (d, d') and (d, p) reactions (spin factors being taken into account) are by an order of magnitude more strongly excited than in stripping. On the contrary, against a small peak of inelastically scattered deuterons a strong proton group at  $E^* = 3$  MeV, corresponding to the two-quasiparticle state excitation of  $Sn^{118}$  is observed. A rough evaluation shows that the same single-particle states are an order of magnitude less strongly excited in inelastic scattering, than

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ОПРЕДЕЛЕНИЕ МОДЕЛЬНОЙ ПРИРОДЫ УРОВНЕЙ  
ПРИ ПОМОЩИ ПРЯМЫХ РЕАКЦИЙ ( $dp$ ) и ( $dd'$ )

## Введение

Модельные характеристики (энергия, спин, четность, вероятность перехода) уровней ядра можно получить при помощи многих экспериментов, которые делятся на две основные группы: исследование радиоактивного распада и изучение ядерных реакций.

Первая группа экспериментальных работ изучает энергетические состояния, расположенные вне сферы Ферми, тогда как при помощи ядерных реакций можно исследовать также и состояния, расположенные внутри сферы Ферми, т. е. можно исследовать практически все состояния ядра.

Достоинством экспериментов первого типа является высокое энергетическое разрешение; недостатком — сложность извлечения экспериментальной информации (особенно при изучении  $\gamma$ -переходов), строгие правила отбора, зависящие от динамических свойств уровней в большей степени, чем от их модельной природы\*, а также ограниченный диапазон энергий возбуждения исследуемых ядер.

В ядерных реакциях может быть возбужден любой из уровней ядра и лишь сечение реакции с возбуждением этого состояния определяется природой уровня, типом и энергией участвующих в реакции частиц. Следует также подчеркнуть, что ядерные реакции при исследовании с различными бомбардирующими частицами позволяют изучать квантовые характеристики практически всех ядер, особенно в области легких и средних ядер, где благодаря им получены наиболее полные спектроскопические данные. Теория ядерных реакций еще не находится в таком состоянии, чтобы предсказать, какой тип уровней будет наиболее интенсивно возбуждаться в данном типе реакции (имеются, однако, два исключения — ( $dp$ )-реакции и неупругое рассеяние). Для этого необходимо вводить для каждой реакции (или для родственных реакций) свою модель и механизм. Наиболее распространенные из таких моделей — модели прямых реакций и составного ядра — являются идеализацией действительной картины, сильно подчеркивающей ее противоположные стороны. Оба эти процесса являются неотъемлемыми частями любой ядерной реакции. Существенно лишь то, какой вклад в общую вероятность перехода дает каждый из этих процессов.

Поскольку распад составного ядра не зависит от свойств возбуждаемых уровней, а определяется только проникаемостью потенциальных барьеров и плотностью уровней составного ядра, то реакции, идущие

\* Хотя разделение уровней на одночастичные, коллективные и т. п. чисто условно, тем не менее (для проверки моделей) очень удобно описывать данный уровень (или группу уровней) одной моделью, которая дает наибольшее количество информации, согласующейся с экспериментом. Под модельной природой уровня понимается то, в какой степени существующие модели ядра описывают спин, четность, энергию, вероятность перехода и другие характеристики данного состояния.