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Soviet Economic Competition and the
Chemical Industry

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Soviet Economic Competition and the Chemical Industry

Paul Gekker*

Our purpose today is to survey the Soviet chemical industry in order that we may judge whether, and in what way, it constitutes a challenge to us. We want to review the past development of chemical manufacturing in Soviet Russia, the present stage of their efforts in this field and, of course, say something about likely future progress. However, these questions are really aspects of the general comparison between the United States and Soviet economies which interests everyone nowadays. Besides, the title of this talk suggests that we are concerned primarily with the competitive struggle, and only secondarily with its implications for the American chemical industry. And so it might be well for us to discuss the general subject of economic competition so that we may be quite clear with regard to those aspects of it which concern us and, equally, those which do not.

I.

By now, most experts agree that the Soviet economy is growing faster than ours, although there is some disagreement as to how much faster. It would tax your patience to review the various ways in which this exercise in economic comparisons is conducted. The scholars doing this work are thoroughly aware of the difficulties, as well as of the many reservations they must make in interpreting their results. One discouraging obstacle, of course, is that the Soviet statistics are bad, unbelievably so. The most fitting description is perhaps the one suggested by Professor Heymann: the Soviet statistical situation resembles nothing so much as a "jig-saw puzzle with a fuzzy picture and at least half the pieces missing."

The statistical difficulties are serious, but they are not the whole story. When we have good statistics, as we have generally for Western Europe, we can construct very informative comparisons between any two countries, or for a group of countries. But all of the time, we are perfectly aware that these economies differ in important ways: in size, in population, in the different structure of economic activities both domestic and foreign, which are usually reflections of varying basic resource endowments, and so forth; and we apply our knowledge of these differences when we read the results, because we are fairly well acquainted with the general features of other Western economies. We are acknowledging, if you will, that we are engaged in an exercise of comparing things which are, essentially, not comparable.

It might seem that some of these differences are minimized in comparisons between the United States and the Soviet Union. Their population is roughly about 15 per cent larger than ours, surely not a significant obstacle to comparability. We are both large countries, each with a considerable variation in geographic and climatic conditions. This means that we are both richly endowed with a wide range of natural resources necessary to the full development of a modern

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economy. But the differences in the structure of basic economic activities between our two countries is indeed very great, and vastly overshadow any similarities. The essential difference is that Soviet development has been of a very special kind, consciously directed toward the building of a particular pattern of economic activities. There is no secret about the nature of this development, or about the methods by which it has been brought about; and no reputable student of Soviet economic affairs would dispute the proposition that this special kind of growth affects the basic noncomparability of his measurements of the relative rates of economic progress in the United States and the Soviet Union.

The essence of Soviet growth may be put in this way: governed by a particularly ruthless political system, Soviet economic development has been consciously directed toward the priority development of heavy industry (including, of course, defense and defense-related productive facilities) in the interests of national and international political power and the pursuit of Communist aims both at home and abroad.

This special nature of Soviet growth suggests a message which it is useful to spell out. It is that the over-all measurement of the efforts of our two countries in the economic field is a catch-all, embracing some things which should concern us as well as a good many things in which there is no competition--not to speak of comparability--at all.

If this is true, how should we take Khrushchev, the economic expert, as distinct from Khrushchev the adversary in other fields? On more than one occasion, the Soviet leader has thrown down a general economic challenge in the form of boasts that the Soviet economy will equal, and then overtake, the United States in national income, in industrial production, in the output of this or that particular product, or area of economic activity. Most of these goals are to be reached by some specific year, some only after a vague span of time. The formula has been elaborated many times and in slightly different ways. Incidentally, these Soviet pronouncements are sometimes interesting because they hint of earlier goals which are altered and, occasionally, discreetly dropped altogether. But this does not prevent Khrushchev from telling us he will pass us by, whether we want to listen or not. I think we should, but I suggest that we should also take the time to analyze the content of his claims and his boasts.

It is important to emphasize that the constant repetition of this theme of "matching and overtaking the most advanced capitalist country"--to use the standard Soviet formula--is essentially a propaganda weapon. It is used partly to spur effort inside the Soviet Union, and partly because there is a kind of compulsion to assert the coming superiority of the Communist system in all fields. And we have to admit that it has had a considerable measure of success, particularly if Khrushchev could point to a narrowing economic gap, based on lower rates of output in the United States, whenever we were experiencing domestic economic difficulties.

While we are still on the propoganda aspects of the "race for economic supremacy"--another Soviet catchword--we should take a measure of comfort from two recent occurrences. In the first place, our continuing domestic recovery, about which Secretary Dillon was so encouraging in his speech in San Francisco last week 1/ should eliminate all premature talk about the narrowing gap--or that part of it which is created, in times of American recession, by our own efforts.

Secondly, it was particularly opportune that President Kennedy, in a recent press conference, took occasion to throw the ball back into the Soviet court. I wish the episode were more widely known, for I believe it to be instructive about the proper response to be made to the ceaseless, and often very rude, propoganda of words. Here, in part, is what the President said on June 28. He was referring to Khrushchev's description of the United States as a worn-out runner living on his past performance, and to Khrushchev's claim that the Soviet Union would out-produce the United States by 1970.

"Without wishing to trade hyperbole . . . I do suggest that he reminds me of the tiger hunter who has picked a place on the wall to hang the tiger's skin. This tiger has other ideas.

"Premier Khrushchev states that the Soviet Union is only forty-four years old but his country is far older than that, and it is an interesting fact that in 1913, according to the best calculations I can get . . . the Russian gross national product was 46 per cent of the United States gross national product. Interestingly enough, in 1959 it was 47 per cent. Because, while the Soviet Union was making progress . . . so was the tired out runner

" . . . it is my judgment that the Soviet Union will not out-produce the United States at any time in the twentieth century.

"In short, the United States is not such an aged runner and, to paraphrase Mr. Coolidge, 'We do choose to run.'" 2/

May I draw two observations from the President's statement? The first was made by Mr. James Reston, who called President Kennedy's statement "both hard and tart," as well as "direct, dignified, and quite composed." Mr. Reston also observed that the President, in this and other respects, bore in mind that nothing infuriates the Russians more than a little gentle mockery. 3/ All this is true. The second

1/ The New York Times, September 9, 1961, p. 13.

2/ The New York Times, June 29, 1961, page 12.

3/ The New York Times, June 29, 1961, page 14.

observation is that, so far as I am aware--and I have made as careful a search of the record as I can--this was one occasion when a great and anguished howl was not forthcoming from the Soviet side. If the shoe fits, as the saying goes.

However, something more fundamental is implied by the President's statement--more specifically, by the statistics he used which I did not repeat in the excerpts I showed just a moment ago. The statistics of general growth and progress which lay behind the President's statement bring the message that comparisons based on broad aggregates of growth may be dangerously misleading.

This subject of U.S.-U.S.S.R. comparisons--which one American student has so happily named the latest "mass spectator sport"--can be characterized with the help of two illustrations. Both relate to areas in which the Soviet leaders can, and do, claim substantial progress. But they make clear the essentially propagandistic nature of these generalized Soviet boasts.

During the past two years or so, the Soviet authorities have been able to claim that they had matched us in butter production. From the Soviet standpoint, perhaps the main point is that the achievement brought considerable internal satisfaction. As for the competitive "race," it matters hardly at all, for we have long since effected a partial substitution of margarine for butter, quite apart from the fact that we have also moved to much higher per capita levels of consumption of high protein foods like meat, in which the Soviets are very, very far behind. The point, of course is not that we should be self righteous about our diet levels, but it is interesting that the Soviets, in something of a minor pique, have occasionally referred to the "oleo-margarine civilization" in America. Apparently, the intended mockery has passed unnoticed on our side. You may be sure that, despite the discreet Soviet silence in public, President Kennedy's did not.

This first example may have been intended more for your amusement than because it points any lesson about economic competition. Clearly, the butter-margarine race is not important.

The second illustration is more serious and, I hope, more instructive in what it suggests of the peculiar character and tempo of Soviet economic growth. At about the same time as the Soviet butter claim was advanced, they were able to report that they had overtaken us in the output of coal. To be sure, the margin was close. When we take account of various statistical differences, such as the different ways in which coal output is calculated, and the lower quality of Soviet coal, we are still ahead. But this is not the point of the illustration at all, because the differences are not great.

The main point is that at the time the coal claim was made the Soviet economy was just on the threshold of that major shift from coal to the use of oil and natural gas which dates back decades in the United States. And with this emerging shift from solid fuels as the energy base, there was Soviet recognition of the pressing need to develop the petrochemicals industry in all its diversity, a point I shall mention again.

What does this suggest, viewing economic development over long periods of time? It suggests that the Soviets have striven, with enormous effort and against great obstacles, to build the sinews of economic strength essentially by reproducing the pattern they know-- that of the West. As a friend of mine puts it, they have run as fast as they can to build a respectable capacity in steel--and they have it-- to wake up and find out the rest of the world has been busy making window curtains out of glass. And a lot of other things as well.

Does all this mean that general economic comparisons between our two countries are unimportant? Not at all. In fact, we must study the Soviet economic effort with all the skill and perception we can muster. The point, simply, is that the scholarly studies cannot present the qualifications in quite the rough and ready fashion I prefer to use here. It is customary to couch these matters in elegant explanations about the statistical, conceptual, and methodological difficulties of making inter-country comparisons; and I have great respect for the best of these essential tasks. But it comes to the same thing in the end, so that I am trying, in a subject dull enough even without these disputed points, not to put you to sleep. Besides, if we don't put these matters bluntly at times, we can never keep up with the headlines Khrushchev creates for us.

At best, then, comparisons based on broad measurements of growth can only suggest--and rather imperfectly--something we need to know about Soviet resource allocation: the proportions of national output devoted to basic industry, to defense, to consumer goods, questions of this sort. When we speak of economic competition, we have to be more specific, and this cannot be done without going behind the aggregates to look at individual sectors, particular products, and areas of concentration and effort. Competition, in other words; but competition in what, and for what? Rocket fuels? Assuredly. Sulfuric acid or rubber-based paints? Yes and, then again, no. Capacity to produce rubber-based paints? Maybe, but to what ends? To use as protective covering for military equipment? Or in the form of products you can buy in order to finish the paneling in your basement?

II

I hope I have said enough to set the stage for any discussion of economic competition. Now it's time to look more closely at the Soviet chemical industry. This must necessarily be a bird's-eye view.

In general, the Soviet chemical industry displays the same development which is characteristic of the Soviet economy as a whole. How can we best describe this general development? There is capacity to produce a wide variety of chemical materials and manufactured products. Some plants in the priority heavy industry sector can stand favorable comparison with the best the West can show. Side by side with these we find installations using antiquated techniques, equipment which is decades behind the time, production conditions marked by the excessive use of manual labor for tasks which have long been mechanized in the West, and a much narrower range of production over the whole field. This is not imagination. It is thoroughly well documented from Soviet sources which, while they are sparing of useful general statistics, are revealing enough in their criticisms of unsatisfactory conditions in the chemical as well as in other industries.

We can review past developments in the Soviet chemical industry briefly enough for present purposes. We needn't dwell on the situation prior to the First World War. We may say, in fact, that the bulk of the Soviet chemical industry has been developed since Soviet times. As you know, too, the buildup of the Soviet chemical industry in the late 1920's and early 1930's was accomplished in part with the assistance of imports of Western technology and the help of engineers and technicians--from the United States, from Germany, and from other industrialized countries.

Just before World War II the Soviet chemical industry as a branch of heavy production was fairly well developed, but in uneven fashion, according to the priorities set by the authorities. Certainly we can believe that defense production received first consideration; but as we know, it was not adequate to withstand the onslaught and to turn the tide in wartime without help in the form of deliveries from abroad. In general, the industry was obliged to concentrate on priority tasks, and these alone. But conditions were very primitive in large sectors of the Soviet economy which was working -- as it still does to an astonishing degree -- under forced draft. Things are not quite so backward now. On the other hand, Soviet published sources still frequently complain of the very same difficulties which the industry faced in a simpler day and under much more trying conditions.

Let us try to picture the present stage of Soviet chemical production. Capacity exists for the production of a wide variety of inorganic and organic industrial chemicals, for coke oven and gas plant byproducts, for organic petrochemicals, for fertilizers, paints and varnishes, for dyestuffs. Wherever these facilities contribute to defense readiness, and are essential to priority branches of other

industries, the level of development is impressive though it is always under strain. Wherever consumer interests or the civilian economy are concerned, there is a serious lag. Capacity is still inadequate to meet domestic demand, for example, in fertilizers. The Soviets are considerably behind, but trying to make up for lost time, in the chemical specialties such as plastics and the man-made fibers. And, still, the level of output and quality of such things as pharmaceuticals, soaps and other washing agents, not to speak of cosmetic and related items, are very unsatisfactory.

How far have they come in forty-odd years? According to one study, the rate of Soviet chemical industry expansion between 1913 and 1955 has been somewhat higher than ours. This is, of course, a classic example of what it means to start from a much lower level. We can extend these comparisons. The increase in total Soviet chemical output has been accounted for primarily by increases in numbers employed rather than by rising productivity per worker, so that the Soviet increase in output per man has been much lower than in the United States. We cannot measure output per man-hour, but we know that the average work week has been reduced significantly in the United States during this period, and much less in the Soviet Union.

We have a few more general comparisons to make before we have exhausted almost everything which can be summarized in a brief talk, mainly because of the lack of statistics on the Soviet side. Here are a few examples. Soviet oil production is now very roughly less than one-half of ours; in natural gas, the proportion is about one-sixth; the Soviets produce less than one-third our level of output of synthetic and artificial fibers. By 1965, at the end of the present Soviet Seven-Year Plan, Soviet oil output is supposed to reach about 70 per cent of U. S. output last year, a little less than one-half the level of U.S. gas output in 1959, and between 80 and 90 per cent of U. S. output of synthetic and artificial fibers in 1960.

There is some evidence indicating that labor productivity in the Soviet chemical industry is now rising faster than ours. But here are some interesting Soviet figures comparing the two a few years back. In 1956, Soviet output of the artificial fibers, per worker engaged, was 18.5 per cent of U.S. output in 1954; for the same years, the Soviet level was 17.6 per cent of ours in synthetic rubber; in cellulose, paper and carton production, 42.1 per cent; in oil refining and output of refined products, 43.4 per cent.

What of Soviet plans for the future? Fortunately, Khrushchev has given us a blueprint. It is a very general document, more interesting for the indications of policy than for the few figures it contains. At least it provides a fair idea of where the shortfall is, seen from the Soviet viewpoint. The blueprint is contained in a report presented by Khrushchev to an important two-day meeting, devoted entirely to

the chemical industry, which was held in Moscow in May, 1958. What was said at that meeting, and repeated on subsequent occasions when Soviet leaders have chosen to deal publicly with the development of the chemical industry, is revealing and interesting.

Khrushchev's report of May 1958 clearly indicated that in the current Seven-Year Plan which runs through 1965, major emphasis would be placed on chemical industry development. He admitted that this was an area in which the Soviet economy had lagged seriously behind Western developments. Khrushchev implied that the lag was due in part to the inability of Soviet specialists to foresee and exploit opportunities for the development of new products and new branches of the chemical industry. This is an important point to which we must return when we discuss the prospects. The stress, still, was on the chemical industry as a branch of heavy industry. It was also made clear that the emphasis was motivated by the savings in labor and industrial and agricultural raw materials which was to be made possible by the use of synthetics. A major effort would therefore be made to build up such newer branches as petrochemicals and plastics. Obviously, considerable investment in new plant and equipment would be required. Furthermore, it was intended to help this ambitious program along by imports of chemical equipment and by using the services of foreign technicians and engineers.

At the present time, therefore, the Soviets are involved in an ambitious bootstrap operation in the chemical industry. Understandably, they want to develop and enjoy the benefits of the many new products which have created a revolution in materials use in the West. And they want to telescope the process. To judge by occasional press stories, they are actively trying to buy chemical manufacturing equipment -- in some cases entire package plants -- and to get help from Western engineers. Apparently, they are meeting with some success.

But the planned pace of development is so high that there are inevitable difficulties, of which a great deal is written in the Soviet press. The difficulties are of various kinds, and they make an interesting story, but we cannot take time to deal with it. One result of these troubles, however, is that plans for investment in chemical facilities have not been satisfactorily fulfilled for the past three years or so; and that condition is true, in varying degrees, in other industries as well. The main explanation, quite simply, is that they are trying to do so much at once that some projects cannot possibly be completed in quite the way they would be if efforts were better coordinated.

These difficulties, which arise from the pressures of an economy working with little slack, might be temporary and, perhaps, not crucial. It may be only a question of time before the most serious troubles are ironed out. We can assume that the chemical industry goals in the current plan will be pretty generally met, and that it will reach the stage which we could measure only very inadequately with the few statistics available to us.

What point will we have reached in our chemical development by 1965? Thinking back over the revolution which has taken place in the chemical industry within my short memory -- the variety of products I would not have believed possible when I was a youngster -- should we assume that the same things being produced today will simply be perfected and that we will simply have more and improved versions? Or will we experience a technological revolution comparable to the one which we have been passing through, and which the Soviet chemical industry is attempting to reproduce?

This question brings us to the role of technology, which is crucial to the further development of the mature economies.

We usually say that countries coming later to the stage of economic development are in a position to telescope their growth because they can take advantage of technology already developed. This is perfectly correct. And, to be sure, this element of borrowing technology is exactly what the Soviets have always done, and they would do more of it if they could.

But there is one aspect of technology which, I think, has escaped notice. It has a special meaning when we appraise Soviet efforts.

I believe that the role of technology in economic development is not independent of the organization of society. Something of what I mean is suggested by Khrushchev's explanation for the past lag in Soviet economic development. He attributed it, you will recall, to the failure to anticipate developments and to exploit opportunities to pursue them. This amounts to saying that, had the Soviets foreseen the direction of the technological revolution in chemistry in the West and, given their compulsion to develop along the general industrial lines of this "most advanced capitalist country," they would have found the will and the means to imitate this effort. But I see no way in which this is guaranteed for the future of Soviet chemical development because, if I am not wrong, technological effort responds to basically different stimuli under their system and under ours.

In many areas of scientific investigation, the pace of research and its application are no different there than here. It is also true that research directed toward the solution of specific problems, or in response to clearly defined requirements, will sooner or later bear results. Moreover, we know that the Soviets are capable of committing any necessary effort -- human, material, financial -- to the solution of what they consider first priority tasks. This certainly is the lesson of the dedicated space effort. What of the West, or of the United States effort? We can define these problems, too, and after sputnik I imagine we have.

But technology does not progress in a vacuum. We also know that we cannot always foresee the results of current research. We have many examples which teach us that the results of much research have appeared of no practical significance until their possibilities were grasped by others. And these people are almost always as far divorced from the problems of the laboratory as it is possible to be. Their interest and their determination to grasp these opportunities has in turn defined new problems, so that the process has been cumulative in expanding the area of practical application, further laboratory work, and so on.

What is this impetus which makes me suppose that western developments in chemical technology which are still unforeseen may be difficult for the Soviets to reproduce? As an idea, it is something very simple, yet it is most intricate in its operation. It is something which the Soviets not only do not have, but which they are completely incapable of understanding. It is, ladies and gentlemen, the urge to make the better mousetrap.

I would like to develop this point briefly because I suspect that I may be accused of creating a myth. Are we to believe, for example, that American improvements in chemical technology in recent decades are the result of goals established by the national authorities, or even by the defense establishment? Of course not. Except for special demands, it works the other way around. Yet in the Soviet Union these are the only goals there are. No privately determined goals affecting the search for technological improvements exist. It does not seem to me unreasonable, therefore, to say that Soviet technological advances reflect the response to two types of decisions, both determined by the political authorities: one, the specific research requirement posed by defense needs; and, secondly, the decision to develop and apply the advanced technology of the West because of the commitment to rapid economic growth. This includes, of course, improvements in the material well-being of the Soviet people. And so, as my nameless friend of the earlier steel industry example puts it, when Khrushchev gets up and, like a man bringing glad tidings of great joy, promises the Soviet people they will secure enjoyments perfectly familiar to well-read twelve-year olds in the West, what are we to think? Except to hope that the Soviet people may come to enjoy them, and that things may change for the better as a result. At the moment, I am not betting any of my money on it.

III

Now it is time to bring together the few threads I have followed in this talk.

First, and perhaps most important, I should not like to be misunderstood. I do not for one instant minimize the Soviet challenge, which is many-sided and world-wide. For the fact of the matter is that we are engaged in a serious struggle with adversaries who bear us no affection and who have never denied their intention of contributing to our downfall whenever and in whatever way they can find profitable to use. Nor do I slight the implications for us of the rich resources of the Soviet land, the considerable talents of its people, and the dedicated drive to make life uncomfortable for us. They aren't doing a bad job of it, and nobody denies that we have to do better.

Moreover, I know that the Soviet competition is economic -- in the narrow sense we have discussed today -- but that it is also a great deal more besides. Most of you are sufficiently familiar with the concentrated trade and aid effort which the Soviet Union and its allies are pushing in selected areas of the lesser developed world. As of now, few of the projects are specifically related to the chemical industry. For the moment then, and apparently for some time to come, Soviet chemical efforts will tend to be concentrated on the domestic bootstrap operation. Foreign aid or trade ventures in chemicals will be the occasional exception rather than, as in oil, a major export drive which raises difficult problems for the West. In this field, competition is only in part economic; and far more than economic countermeasures may be needed in order to meet the challenge.

Where is the challenge to the American chemical industry? Wouldn't it be highly presumptuous of me to say anything about the specific effort required in chemicals, especially to this audience? We all know the story of Lord Nelson, and the signal he flew at Trafalgar: "England expects every man will do his duty." Until I read Peter Freuchen's Book of the Seven Seas, I had never heard the sequel to the episode, and I wonder if you have. I like to believe it is true. It is told of Admiral Cunningham, the second in command, who was on another ship. When he read Nelson's message to the fleet, he is supposed to have remarked, "I do wish Nelson would stop signalling. We all know what we have to do."

While I believe, therefore, that economic competition plays a role, my message is that we ought to adopt an adult approach, distinguishing carefully the ways in which we may conceivably be threatened, and disregarding those aspects of the so-called "race for economic supremacy" which is just so much talk. In this game, the use of a sense of humor -- as well as an occasional hypodermic jab -- make a wonderful tonic.

I hope I have made it clear that I am not among the prophets of doom. Instead, I ally myself with spokesmen for a mature appraisal of the challenge, which recognizes the necessity of preserving our freedoms, our best traditions, and our ideals. Lacking the time to spell these out, I should like to put in a plug for the analysis presented in a little book by a man who is both an eminent representative of the American business community as well as a distinguished spokesman on the affairs of America and the world. His name is Mr. Clarence B. Randall and his book is called The Communist Challenge to American Business. I wish that his thesis and his message for Americans in this age of urgent challenge were indeed more widely known.

This brings me to the end of the rather modest contribution which I can make to your understanding of Soviet affairs. I feel moved, however, to close with something of an explanation, on the grounds that this talk has sometimes sounded more like a sermon than a speech on the subject described by its title. But missionary work is a very old and honorable calling; in this field it is often the best way to put matters straight; finally, it is justified because so often one is not preaching to the converted. It is, in my opinion, a job to be done, and one which I immensely enjoy trying to do.