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Faculty Senate Minutes #147

John Jay College of Criminal Justice

November 19, 1996 3:15 PM Room 630T

present (30): Yahya Affinnih, Michael Blitz, Dorothy Bracey, Effie Papatzikou Cochran, Elizabeth Crespo, Edward Davenport, Jane Davenport, Kojo Dei, John Donaruma, Janice Dunham, P.J. Gibson, Elisabeth Gitter, Edward Green, Lou Guinta, Karen Kaplowitz, Andrew Karmen, Kwando Kinshasa, Sondra Lanzone, Tom Litwack, Barry Luby, James Malone, Ellen Marson, Robert McCrie, Daniel Pinello, Frederik Rusch, Carmen Solis, Davidson Umeh, Maurice Vodounon, Agnes Wieschenberg, Daniel Yalisove

Absent (8): Arlene Geiger, Andrew Golub, Amy Green, Gavin Lewis, Mary Ann McClure, Jill Norgren, Adina Schwartz, William Stahl

Guests: Dean for Admissions and Registration Donald Gray, Assistant Dean of Admissions Frank Marousek

Agenda

1. Announcements
2. Invited Guest: President Gerald W. Lynch
3. Invited Guest: Dean Donald Gray

1. Announcements from the chair [Attachment A & B]

The Faculty Senate's Executive Committee will amend the first prototype of the Academic Certification Exam (ACE), also known as the "rising junior exam," to this set of Minutes so the John Jay faculty can review the ACE. This appended prototype was pilot tested at five CUNY colleges last year [Attachment A & B].

A second prototype of the ACE is being currently developed for a second pilot test this spring, in April and May, of all CUNY students who have accumulated between 40 and 90 credits.

[Attachment A is a description of the 7 "tasks," 6 short and one long, that comprise the 3-hour ACE. Attachment B consists of the four readings or texts about which the students must write: please note that the students see the first three readings only when they take the test and that the students receive the fourth reading two weeks prior to taking the ACE (this fourth text is also printed in the test booklet so the students can refer to it when writing the seventh "task"). Please also note that only the first five pages (i.e., a sample) of this last reading, which is a 13-page chapter from Time Wars: The Primary Conflict in Human History by Jeremy Rifkin, are included in Attachment B. Anyone

wishing to see the entire 13-page chapter may obtain a copy from the Senate's executive committee.]

The ACE is designed to test not knowledge but critical thinking, reading comprehension, and writing skills needed by students who wish to move from sophomore to junior (and then senior) status. This spring's pilot will be analyzed by 80th Street to determine, among other things, whether there is a correlation between students' scores and the colleges, programs, and majors the students are enrolled in.

President Lynch will be unable to come to today's Senate meeting: his Office informed the Senate Office this afternoon.

The Quality of Life Committee has met and is meeting again shortly. A survey of eight department secretaries in North Hall reveals that only one department has had an exterminator visit its department offices since the summer, despite the administration's pledge to have exterminators in North Hall weekly or, if needed, twice a week to eradicate the rodent infestation.

A number of Senate members who attended the previous day's College Council meeting reported about the meeting, the discussion, and the vote on the branch campus in Gurabo, Puerto Rico. Although the agenda item was for discussion and for reports and not for a vote, a motion to approve continuation of the branch campus was made by the Provost at the very beginning of the discussion, after a lengthy speech by President Lynch in praise of the branch campus, and the question was called by the Student Council president very shortly thereafter. Many Senators reported that the College Council meeting had been extremely unpleasant and did not' allow for discussion or questions.

Several College Council members have said that because of the previous day's meeting, they see no reason to henceforth attend College Council meetings. Also, many junior faculty members reported having felt intimidated at the College Council meeting. President Kaplowitz said that it is nonetheless important that Council members continue attending College Council meetings, since the College Council is the governance body, and she suggested that College Council representatives report their experience and concerns to their department chairs as well as to their departments. She also recommended that Council members consider inviting their chair and other colleagues to future Council meetings since all members of the College may attend (and speak at) College Council meetings.

When it was reported that during the previous day's meeting the President, who chairs the College Council, as required by John Jay's Charter, had not recognized some of the Council members who had wished to speak, it was suggested that members of the College Council (and others wishing to speak) emulate the praiseworthy procedure of the College's Town Hall Meetings by lining up at the microphones and speaking when their turn at the microphone comes.

President Kaplowitz reported having received many phone calls at her office and at home from faculty wishing to complain about the way the previous day's College Council meeting had been conducted.

Senator Michael Blitz asked whether Robert's Rules permits a vote to be rushed through without discussion. Senator Kwando Kinshasa said no, that Robert's Rules requires that a reasonable

time for discussion be allowed before the question may be called.

Senator James Malone said he had spoken against and voted against the branch campus proposal two years ago because he had felt the process had been flawed but that now that the program exists he felt he should vote to continue it and therefore did so.

Senators reported that it is repeatedly stated by the College administration that the Puerto Rican faculty at John Jay have been opposed to the branch campus when, in fact, those faculty have said repeatedly that they have been opposed only to the process, which did not allow for full faculty discussion and that yesterday's meeting was a continuation of that problem of two years ago.

Senator Tom Litwack noted that at the College Council the previous day some faculty voted in favor of the motion to call the question, which they did not have to do.

It was noted that in his presentation about the excellence of the branch campus President Lynch reported that the branch campus students receive immediate and mandatory tutoring whenever they have difficulty with their studies and he attributed that in part to the graduation rate which he said is in the high 90th percentile.

It was also noted that after reporting this, President Lynch proposed a specific way to spend the surplus revenue from the branch campus program, namely to fund a study of the impact of the graduates of the branch campus on the crime rate in Puerto Rico, but that when Professor Kaplowitz made an alternate proposal for the expenditure of the surplus revenue, namely that the money be used to support our academic program at the main campus in the form of tutoring, library books, and computers for our students at our New York campus because we are so severely underfunded, President Lynch ruled her out of order.

Senator Litwack said he does not think the true operating costs of the Gurabo branch campus are reflected in the one-page budget document distributed at yesterday's College Council meeting in response to the Faculty Senate Executive Committee's agenda request for reports and budget information about the branch campus and, so, there may not, in fact, be a surplus from this program.

2. Invited Guest: President Gerald W. Lvnch

[President Lynch will be unable to come to today's Faculty Senate meeting: his Office informed the Senate Office this afternoon.]

3. Invited Guest: Dean for Admissions and Registration Donald Gray

Acting Dean for Admissions and Registration Donald Gray and Assistant Dean of Admissions Frank Marousek were welcomed.

Dean Gray said he had asked Professor Kaplowitz to invite him to today's Senate meeting because he had wanted to address some issues reported in Senate Minutes #144 of the October 9, 1996, meeting at which Dr. Peter Barnett, the Executive Director of

Computer Information Systems, was a guest. He added that he asked Dean Marousek to accompany him because he is the dean responsible for admissions.

Dean Gray noted that the Faculty Senate minutes are widely read and are a very important document and source of information at John Jay and that he, therefore, wished to meet with the Senate.

Dean Gray said the comments by Dr. Barnett imply that toward the end of registration there was confusion and that placement and prerequisite checking techniques lapsed. This implication, he said, has disturbed various administrators involved in registration. Dean Gray explained that he is here to assure us that things are not out of control for the 2500 students about: whom Dr. Barnett suggested things were not under control.

Dean Gray said that late registering students are not placed on faith but, rather, no student is allowed to register without being tested and properly placed. He said that late students get a personal appointment with someone in the Registrar's Office to arrange their schedule, and so such students are probably better off than other students.

Dean Gray also reported that extra testing sessions and extra counseling sessions were scheduled this semester to clean up the problems caused by centralized testing, which was imposed upon all the CUNY colleges by 80th Street. He said there is no rush of late allocated students on the last day of registration and he said the assertion that some students had received no orientation is not true. He said the course schedule is managed on a day-to-day basis during registration.

President Kaplowitz said we all appreciate Dean Gray's work and his professionalism and that, perhaps, we should have invited Dean Gray to the meeting when Dr. Barnett was scheduled to report on the audit he conducted at the Senate's request. She said undoubtedly Dr. Barnett will wish he, in turn, had been invited to come to today's meeting to respond to Dean Gray's comments. She said that we are all sympathetic to Dean Gray's concerns. At the same time, she noted, the Faculty Senate is very concerned about issues of standards, prerequisite enforcement, and providing a viable educational program for our students.

Senator Edward Green praised John Jay's Registrar's Office, saying that it is much better and much more responsive, especially to students, than those at other colleges. He also noted that while our student enrollment has increased dramatically, the number of staff members has not increased.

Senator Litwack said his recollection of the meeting that Dean Gray is referring to was one that was not at all characterized by anyone, Senators or Dr. Barnett, criticizing the Registrar's Office but, rather, questions were raised about whether the registrations at the computer terminals, which are staffed by students, are being properly conducted and whether prerequisites are being properly enforced. He asked Dean Gray his assessment of that issue.

Dean Gray acknowledged that there is a problem and added that he does not dispute any of the data that Dr. Barnett provided to the Senate in his audit of prerequisite enforcement.

Dean Gray explained that his concern about the discussion about prerequisite enforcement is not so much because of the Registrar's Office but because of the Testing Office. He said Virginia Gardener and Patricia Sinatra do very important work at the College and the discussion did not properly represent that fact. Dean Marousek said that he is most concerned about the report that 1500 or 2500 students were accepted and processed at the last minute which, he added, is impossible.

Senator Michael Blitz asked about the possibility of early registration or preregistration, suggesting that early registration might improve the retention rate of our students. Dean Gray noted that he and Professor Kaplowitz were on a committee that studied the feasibility of such an approach but the problem with early registration is that 40% of our students do not return from one semester to the next but neither they nor we necessarily know who those non-returning students are at the time that early registration would have to take place.

President Kaplowitz added that if preregistration were conducted, the result is that four registrations a year would have to take place rather than the two (excluding summer school) that currently are conducted and that with all offices, including the Registrar's Office, severely understaffed this would be an extra burden for little or no purpose.

Dean Gray added that he does not think early registration, if it could be done, would improve our retention rate because most of our courses are remedial or basic skills courses and these are the courses which would be thrown out of whack by early registration.

Senator Betsy Gitter noted that the Thematic Studies Department does conduct preregistration and that it is essentially a gesture. She explained that preregistration tells the Thematic Studies faculty only which courses are popular with those students who are preregistering at that time.

Dean Gray said he would prefer to see us move toward telephone registration rather than toward early registration.

Senator Effie Papatzikou Cochran said that she agrees with Dean Gray about the excellent work of Pat Sinatra whom she described as dedicated and superb. Dean Gray agreed, adding that Pat Sinatra is both caring and detail-oriented.

President Kaplowitz reported that at a meeting of faculty governance heads of all the CUNY campuses the other day, in response to a question she posed to them, she learned that virtually all CUNY colleges have some system for checking prerequisites. Some colleges place an asterisk on the class roster next to the name of any student who has not met the prerequisites for the course and the instructor may then choose to not permit the student to remain in the course, for example.

Senator Kwando Kinshasa asked whether the permission of instructor waiver requires the signature of the instructor of the course or of the department chair. Dean Gray said that either signature is recognized by the Registrar, even though he knows that some chairs think that only a chair's signature should count. He said he does not think students should be penalized for inconsistencies in College policy.

Senator Gitter asked Dean Gray what he would like ideally to happen in terms of registration, and he replied that he would like every student to read the John Jay College bulletin and understand it. Senator Frederik Rusch asked Dean Gray if he himself understands the bulletin and Dean Gray replied that he does but that the biggest problem in terms of registration is that the students do not read the bulletin.

Senator Tom Litwack asked for the latest news about the Central Office's proposal for a common calendar (required for the ICAM cross registration policy). Dean Gray said he thinks a common CUNY calendar has already been achieved and that the real problem is going to be the proposal for a uniform bell schedule. He said a common bell schedule would make it more difficult for students to move around the University.

Dean Gray said he wants to state that Dr. Barnett does a splendid job for us in the way he manages the data and in the way he has made and is making so many things operational that were not at our disposal before. He said he cannot praise Dr. Barnett's ability, dedication, and accomplishments highly enough. But at the same time, Dean Gray said, he wanted to come to the Senate to clarify the record about some of the issues that had been raised.

Dean Gray thanked the Senate for permitting him to come to today's meeting to speak with the Senate. He and Dean Marousek were thanked for informing the Senate about their concerns.

By a motion duly made and carried, the meeting was adjourned at 4:45 PM.

Respectfully submitted,

Edward Davenport
Amy Green

Recording Secretaries

ATTACHMENT A

Tasks required in the 1996 prototype pilot of the Academic Certification Exam (ACE)

Text #1 and Figure #1: From Jane Brody's Nutrition Book,

Task #1: Examine Figure 1. **Describe all patterns or trends that you see in the data and explain their significance.**

Task #2: Consider both Text #1 and Figure #1. Use **information from both to explain the reasons for the changes in diet and the consequences of these changes.**

Text #2: From Life on the Mississippi by Mark Twain.

Task #3: Identify the similarities and differences the author presents between the two ways of seeing a river.

Task #4: In presenting these similarities and differences, what point of view does the author express? What alternatives to this point of view can you propose?

Text #3: From Worlds of Pain: Life in the Working-Class Family by Lillian Breslow Rubin.

Task #5: In Text #3, the author discusses the problem of "dehumanization and alienation in the work world." What do you think the author is saying about this problem? Do ou see the problem in the same way? **Explain and support your ideas.**

Task #6: Consider Text #3 again. Put yourself in the position of someone able to do something about the problem of "dehumanization and alienation in the work world." **Propose a solution to the problem and explain how you would achieve that solution.**

Text #4: A 13-page chapter of Time Wars: The Primary Conflict in Human History by Jeremy Rifkin. The chapter was received by the students two weeks before the test. The entire text is included in the test booklet.

Task #7: Based on your reading of Text #4, consider these questions:

What are the author's main ideas and purpose in writing about Americans' interest in efficiency?

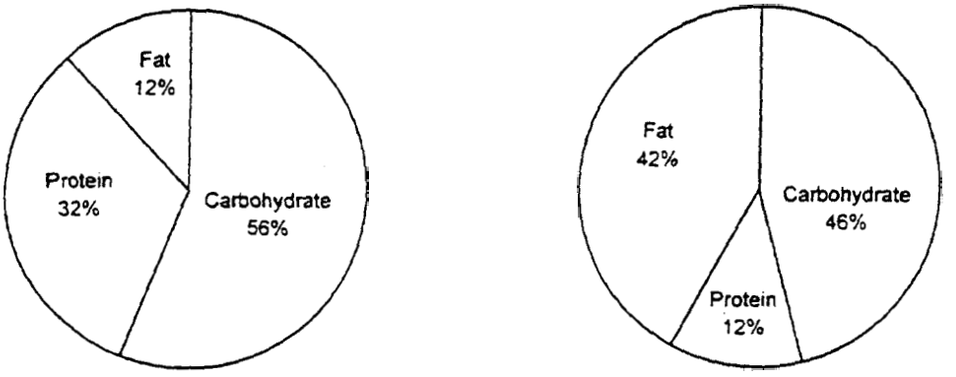
AND

How does the author's discussion of concepts of time in Chinese and Japanese culture relate to and perhaps extend what you see as the author's purpose?

Respond to these questions in one clear, coherent, well-developed essay. Make an effort to keep errors in spelling, punctuation, vocabulary, and sentence construction to a minimum.

[N.B. The words in bold appear in bold in the exam instructions. Two lined pages are given for answering each of the first six tasks (2 hours): 10 lined pages are given for task #7 (1 hour).]

FIGURE #1



1909-13 1976

Where Our **Calories** Come From
1978 ***Handbook*** *of Agriculture Charts,* **Agriculture Handbook No. 551.** p. ***56.***
from **Jane E.** Brody, ***Jane Brody's Nutrition Book***

TEXT #1

In the course of this century, **an** imbalance has crept into the American diet. Since the early 1900s, the percentage of our diet derived from carbohydrates has dropped, and the proportion of fat **has** risen dramatically. . .

Another unhealthful change relates to the ***kinds*** of carbohydrates in the American diet. . . At the turn of the century, most of our carbohydrates were the ***complex starches*** in nutrient-rich grains and beans and the ***natural simple sugars*** in fruits and vegetables. Today a major portion of carbohydrates in the American diet comes from ***refined*** *and* ***processed*** *sugars* often found in relatively nutrient-deficient and high-calorie foods. . . This emphasis on 'sweets" has been linked to a number of heatth problems, especially tooth decay and **obesity.**

Part **of** the problem **is** that there's no powerful, profit-making industry selling Americans on natural forms of complex carbohydrates at every commercial break **on** radio and TV. The growers of **fruits,** vegetables, grains, and potatoes are hard put to compete with the meat, dairy, and processed-foods industries for the consumer's attention.

The fall-off in consumption has been particularly dramatic for flour and cereal products. Today Americans typically consume **half** the amount of these foods their counterparts ate in 1910. . . . At that time, flour (used in bread and pasta) and cereals were America's ***chief*** sources of protein, supplying **36** percent of the day's protein. Today they account for oniy 17 percent of protein consumed, having been replaced by fattier sources of protein, primarily meats.

-From *Jane Brody's Nutrition Book*

TEXT #2

Two Ways of Seeing a River

Mark Twain

Now when I had mastered the language of this water and had come to know every trifling feature that bordered the great river as familiarly as I know the letters of the alphabet, I had made a valuable acquisition. But I had lost something, too. I had lost something which would never be restored to me while I lived. All the grace, the beauty, the poetry, had gone *out* of the majestic river! I still kept in mind a certain wonderful sunset which I witnessed when steamboating was new to me. A broad expanse of the river was turned to blood; in the middle distance the red hue brightened into gold, through which a solitary log came floating, black and conspicuous; in one place a long, slanting mark lay sparkling upon the water; in another the surface was broken by boiling, tumbling rings that were as many-tinted as an opal; where the ruddy flush was faintest was a smooth spot that was covered with graceful circles and radiating lines, ever so delicately traced; the shore on our left was densely wooded, and the somber shadow that fell from this forest was broken in one place by a long, ruffled trail that shone like silver; and high above the forest wall a clean-stemmed dead tree waved a single leafy bough that glowed like a flame in the unobstructed splendor that was flowing from the sun. There were graceful curves, reflected images, woody heights, soft distances, and over the whole scene, far and near, the dissolving lights drifted steadily, enriching it every passing moment with new marvels of coloring.

I stood like one bewitched. I drank it in, in a speechless rapture. The world was new to me and I had never seen anything like this at home. But as I have said, a day came when I began to cease from noting the glories and the charms which the moon and the sun and the twilight wrought upon the river's face; another day came when I ceased altogether to note them. Then, if that sunset scene had been repeated, I should have looked upon it without rapture and should have commented upon it inwardly after this fashion: "This sun means that we are going to have wind tomorrow; that floating log means that the river is rising, small thanks to it; that slanting mark on the water refers to a bluff reef which is going to kill somebody's steamboat one of these nights, if *it* keeps on stretching out like that; those tumbling 'boils' show a dissolving bar and a changing channel there; the lines and circles in the slick water over yonder are a warning that that troublesome place is shoaling up dangerously; that silver streak in the shadow of the forest is the 'break' from a new snag and he has located himself in the very best place he could have found to fish for steamboats; that tall dead tree, with a single living branch, is not going to last long, and then how is a body ever going to get through this blind place at night without the friendly old landmark?"

No, the romance and beauty were all gone from the river. All the value any feature of it had for me now was the amount of usefulness it could furnish toward compassing the safe piloting of a steamboat. Since those days, I have pitied doctors from my heart. What does the lovely flush in a beauty's cheek mean to a doctor but a "break" that ripples above some deadly disease? Are not all her visible charms sown thick with what are to him the signs and symbols of hidden decay? Does he ever see her beauty at all, or doesn't he simply view her professionally and comment upon her unwholesome condition all to himself? And doesn't he sometimes wonder whether he has gained most or lost most by learning his trade?

-From *Life on the Mississippi* (1888)

TEXT # 3

From **Worlds of Pain: Life in the Working-Class Family**
Lillian Breslow Rubin

Over a century ago, in the early stages of industrialization, Karl Marx spoke to the profoundly important human consequences of alienation **from** work--of **work** that doesn't permit the development of skills, of a sense of mastery, of an understanding of the totality of the ***process*** of production, of a connectedness with its *product.* Those issues are no **less** real today. The overt brutalization of industrial workers is no longer with us. But the intensification of technological developments has given rise to dehumanization and alienation in the work world on **a** scale far greater than anything known before.

For the working-class men I met, these issues, while unarticulated in this way, **are** nevertheless real. Most are in a constant struggle to make some order and continuity out of the fragments of their lives. Thus, they come home after work and plunge into projects that offer the possibility for feeling useful, competent, whole again–fixing the car or truck, remodeling the kitchen, building something for the kids. Others–those who seem already to have given up life and hope–collapse into a kind of numbed exhaustion from which they stir only to eat, drink, and watch television. Either way, the implications for family life are clear. Husbands and fathers are removed from active involvement–some because they are in **a** desperate struggle to retain some sense *of* their humanity, others because they have given it **all** up.

There are still a few who have fantasies of one day doing some other kind of work--owning a farm, a ranch, a small business are the **most** common of these dreams. No new phenomenon; for part of the American dream always has been to have a business of one's own. Rarely, however, are these dreams voiced spontaneously in the course of a discussion about work and their feelings about it. In that context, work tends to be seen as a given in life–more or less enjoyable, but ultimately unavoidable, thus not something to give much thought to.

TEXT # 4

The Efficient Society

Rifkin, Jeremy (1989) Time War: The Primary Conflict in Human History
Touchstone - Chapter 8, pages 123-141 plus notes on 258-260

Clocks and schedules, and computers and programs, have transformed the sociology of human existence. The modem time world is fast-paced, future directed, and rigorously planned. The new time technologies have changed our way of life and, in the process, have effected a fundamental change in the value orientation of Western culture. The artificial time worlds we have constructed have been accompanied by a radical new temporal value: efficiency. With its introduction, the modem temporal orientation is complete. Efficiency is both a value and a method. As a value, efficiency becomes the social norm for how all human time should be used. As a method, efficiency becomes the best way to use time to advance the goal of material progress.

To be efficient is to minimize the time in which a task is completed or a product produced and to maximize the yield, expending the minimum amount of energy, labor, or capital in the process. In less than two hundred years, efficiency has risen from obscurity to become the overriding value of society and the primary method for organizing the activities of the human family. Efficiency is the hallmark and trademark of contemporary culture. It binds the various temporal features of the modem world into a single unifying focus. Today efficiency pervades every facet of life: it is the primary way we organize our time and has burrowed its way into our economic life, our social and cultural life, and even our personal and religious life.

We have institutionalized efficiency through the schedule and now the program. Every activity is scheduled or programmed in advance so that we may use time in the most efficient manner possible. Optimizing schedules and programs means optimizing efficiency.

Efficiency was introduced into the popular culture through the workplace. If the first task of industrial capitalism was to make the workers punctual and to discipline them to accept clock time, the next major task was to make them efficient.

Efficiency is a product of three major economic innovations, each of which radically transformed people's relationships to their tools and to their fellow beings: division of labor, mass production, and the principles of scientific management. These represent the cornerstones of the industrial pyramid, and each has played a key role in making efficiency the ovemding temporal conception of the industrial way of life.

Efficiency's ascent to power began with the introduction of division of labor. Economic historian Harry Braverman contends that "in one form or another, the division of labor has remained the fundamental principle of industrial organization."[1] The first philosopher to articulate the importance of division of labor in industrial production was Adam Smith. Writing in *The Wealth of Nations,* Smith contended that the new principle of division of labor provided a means of "saving time" in the production process:

> This great increase in the quantity of work, which, in consequence of the division of labor, the same number of people are capable of performing, is owing to three different circumstances; first, to the increase of dexterity in every particular workman; secondly, to the saving of time which is commonly lost in passing from one species of work to another; and lastly, to the invention of a great number of machines which facilitate and abridge labor, and enable one man to do the work of many.[2]

Adam Smith came to this realization by observing the great strides taking place in watch manufacturing. It was there that modem industry first began to apply the principles of division of labor to increase production. As far back as 1703, master clock- and watchmaker Thomas Tompion was mass-producing timepieces. His biographer, Syrnonds, says that Tompion's success lay in organizing his workshop "in a way hitherto unknown in the English handicrafts."[3] Sir William Petty, one of the distinguished political economists of the period, wrote the following description of the new method Tompion and others were applying to production:

> In the making of a watch, if one man shall make the Wheels, another the Spring, another shall engrave the Dial-Plate, and another shall make the Cases, then the watch will be better and cheaper, than if the whole work be put upon any one Man.[4]

Division of labor meant that more goods could be produced in "less time" at a cheaper cost per unit.

The division-of-laborconcept was followed in close order by the second major economic innovation, the introduction of mass production principles. Eli Whitney introduced the idea of mass production in 1799. Frustrated over the long time delays that resulted from having to teach workers the necessary skills to make the various component parts that went into the assembly of a finished product, Whitney developed the idea of mass-producing standardized interchangeable parts that could be easily assembled by unskilled laborers. He applied the new principles of mass production to the making of muskets.

> To eliminate guesswork by eye, he invented jigs, or guides for tools, so that the outline of the product would not be marred by the fallibility of a shaky hand or imperfect vision. He made automatic stops that would disconnect

> the tool at the precise depth of diameter of a cut. He made clamps to hold the metal while the guided chisels or milling wheels cut it. By dividing his factory into departments-one for barrels, one for stocks, one for each lock piece—the parts could be brought into an assembly room and put together in one continuous uninterrupted process.[5]

Whitney's new mass production process became known as the "American Method." Its principles soon spread to the watch industry, where they were further refined and eventually served as a model for the rest of American industry. The man responsible for applying Whitney's idea to watch production was Aaron L. Dennison. He joined forces with Whitney to set up a company which later became known as the Waltham Watch Company, the first mass production watch company in the United States.'

The principles of division of labor and mass production were both intended to save time. To be effective, they required the setting up of detailed work schedules so that every operation would be subjected to rigorous time standards. To ensure that every moment of the production process would be used to maximize output, a third and final innovation was introduced into the industrial process. It was called scientific management and its author was Frederick W. Taylor.

Taylor made efficiency the ***modus operandi*** of American industry and the cardinal virtue of American culture. His work principles have been transported to every sector of the globe and have been responsible for converting much of the world's population to the modem time frame. He has probably had a greater effect on the private and public lives of the men and women of the twentieth century than any other single individual. Economic historian Daniel Bell says of Taylor:

> If any social upheaval can ever be attributed to one man, the logic of efficiency as a mode of life is due to Taylor. . . . With scientific management, as formulated by Taylor in 1895, we pass far beyond the old, rough computations of the division of labor and move into the division of time itself.[7]

Taylor's principles of scientific management were designed with one goal in mind: to make each worker more efficient. His primary tool was the stopwatch. Taylor divided each worker's task into the smallest, visibly identifiable operational components, then timed each to ascertain the best time attainable under optimal performance conditions. His time studies calibrated worker performance to fractions of a second. By studying the mean times and best times achieved in each component of the worker's job, Taylor could make recommendations on how to change the most minute aspects of worker

performance in order to save precious seconds, and even milliseconds, of time. Scientific management, says Harry Braverman, "is the organized study of work, the analysis of work into its simplest elements and the systematic improvement of the worker's performance of each of these elements."[8]

Taylor considered his work principles to be scientific to the extent that he was able to eliminate all nonquantifiable elements of worker behavior. His time studies reduced every aspect of work to the dictates of time. Worker performance could now be reduced to numbers and statistical averages that could be computed and analyzed to better predict future performance and to gain greater control over the work process itself.

Taylor relied on a new approach to management. The stopwatch and statistics ruled the factory floor. "Management," by the way, seemed an attogether appropriate term to affix to the new scientism. Braverman reminds us that "manage" comes from the Latin *manus,* which meant "to train a horse in his paces, to cause him to do exercises of the manege."[9]

Taylor believed that the best way to optimize the efficiency of each worker was to assert complete control over all six temporal dimensions: sequence, duration, schedule, rhythm, synchronization, and time perspective. No aspect of the worker's time was to be left to chance or to worker discretion; from now on, the worker's time would fall under the absolute control of management. The most efficient state, said Taylor, was the most autocratic. Taylor's principles of scientific management represented the ultimate politicization of the new industrial time. Braverman argues that Taylor's work "may well be the most powerful as well as the most lasting contribution America has made to Western thought since the Federalist Papers."[10]

Taylor's first principle of scientific management was for management to seize control over the knowledge of the work process that had previously been in the hands of the workers. From now on, Taylor stated:

> The managers assume . . . the burden of gathering together all *of* the traditional knowledge which in the past has been possessed by the workmen and thereof classifying, tabulating, and reducing this knowledge to rules, laws, and formulae."[11]

Taylor's intention was to sever the labor process from the skills of the workers. Those skills were to reside only in the hands of management.

Taylor's second principle flowed directly from the first. Having gained a monopoly over the knowledge required to do the work, management must then assume the authority to plan and direct the work on the shop floor. Denied firsthand knowledge of how their work was to be done, the workers would become totally dependent on management in the execution of their tasks.

Taylor believed that as long as the workers maintained both knowledge and control over how their work was to be done, it would be impossible to elicit maximum efficiency. Left on their own, workers would let other "human" considerations enter into the work process. Feelings and emotions would come to the fore, tempering and even undermining the prospect of attaining maximum efficiency. For example, workers might consciously choose to moderate their work pace to accommodate the needs of slower employees. They may even relax their concentration by occasional socializing. Taylor argued that "if the workers' execution is guided by their own conception, it is not possible . . . to enforce upon them either the methodological efficiency or the working pace desired by capital."[12]

In order to secure maximum efficiency in the execution of the work process, a third and final principle of scientific management was called for: the implementation of the "work schedule." It was here that management cemented its control over the total work time of each of its employees.

> The work of every workman is fully planned out by the management at least one day in advance, and each man receives in most cases complete written instructions, describing in detail the task which he is to accomplish, as well as the means to be used in doing the work. . . . . This task specifies not only what is to be done, but how it is to be done and the exact time allowed for doing it. . . . Scientific management consists very largely in preparing for and carrying out these tasks.[13]

Taylor believed that the key to making a worker more efficient was to strip him of any capacity to make decisions regarding the conception and execution of his task. In the new scientifically managed factory, the worker's mind was severed from his body and handed over to the management. The worker became an automaton, no different from the machines he interacted with, his humanity left outside the factory gate. On ffie factory floor, he was an instrument in the production process, a tool whose performance could be timed and improved on with the same cool detachment and scientific rigor as might be applied to the machinery itself.

In the years following Taylor's pioneering efforts, the principles he first enunciated were further refined. New scientific tools allowed more exacting controls to be exercised over the work process. The most interesting advance in the principles of scientific management occurred with the introduction of motion-and-time studies. This development was the brainchild of Frank B. Gilbreth, one of Taylor's early disciples.

Gilbreth filmed the movements of each worker in order to establish standard times for each body motion. Virtually every movement on the factory floor and in the clerical offices was analyzed and assigned an optimum time,