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"Reading, Rioting and `Rithmetic"

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Dear Peter,

Milar, a 24 year-old Ecuadoran, slumps down in his chair when he thinks of his present lifestyle as a university student at the National Polytechnic Institute in Quito. There are lines of worry etched along his brow, and Milar sighs, "Yes, others say I am young and that I have a future. But I feel like 40 and a university degree does not enjoy the prestige it once did."

That Milar should feel old before his time may have something to do with a hectic schedule that forces him to juggle 40 hours working as a night watchman with 40 more hours attending electrical engineering lectures each week. "I study and sleep when I can," says Milar, noting that he would not be able to afford higher education without his own job. Milar's parents are typical of many lower, middle-class Ecuadorans -- they divorced when Milar was 10 -- and Milar's mother must maintain alone her last child still in "colegio", or high school, while Milar fends for himself.

Milar is good-natured, even philosophical, about his situation. "It could be worse," he admits, "but my mother studied in the Central University of Quito and she has always encouraged me. Many of my friends' parents are campesinos, and have no idea what it means to attend university."

Although moral support is free, books are not. In Milar's case, most science texts are imported and carry stiff price-tags. Texts devoted to engineering that cost S/. 75,000 (US \$1 = 673 S/. sucres) are a common find, and even elementary calculus books cost S/. 15,000. Milar jokes, "Here I am -- trained to respect science and invention -- and I cannot even afford to respect copyright laws. None of us can. We photocopy almost everything we read. Some of our professors do the same."

Not all of Ecuador's youth share Milar's diffidence, and in late November, the streets of colonial Quito were the setting for bloody and tear-gas-filled confrontations between students, bus drivers, and national police. The demonstrations were provoked when gasoline price-hikes, which form part of President Rodrigo Borja's "gradualist" approach to curing the ills of Ecuador's inflation-ridden economy, spurred the National Transport Council to

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authorize private bus cooperatives to raise passenger fares from 25 to 30 sucres on normal, weekday routes. Students who before paid 10 sucres to board a bus were now asked to pay 15. Interprovincial bus fares were allowed to rise by 20% across the country.

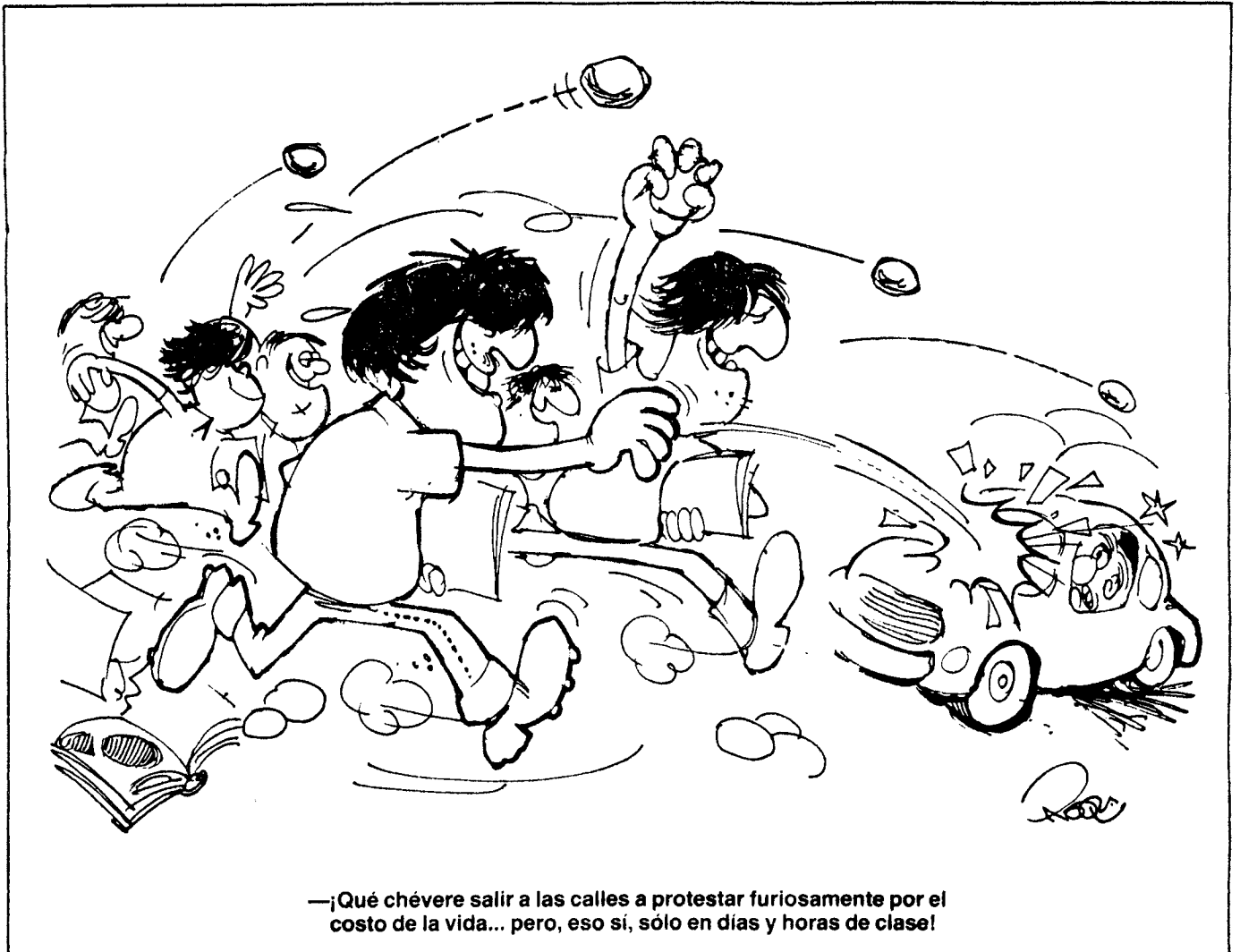
Since private bus co-ops provide most "public" transportation in Ecuador [see WLM-9 for the comparable case in Bolivia], the result was chaos. Young protesters led by student leaders from the Central University and the Federación Estudiantil Ecuatoriana (FESE) resorted to violence, vowing that, "For each sucre that bus fares go up, a bus will be burned!" The students made good on their promise, and for three days cars and buses that dared to attempt passage through student-held barricades in the city center or around the Central University campus were badly damaged in the rock-throwing tumults that ensued. Several students were injured, and one 42 year-old bystander lost an eye before President Borja intervened with police forces and shut down 12 colegios in Quito that had provided the majority of the youthful "manifestantes". And when the student outrage spread to the provinces, one 18 year-old youth -- two years shy of graduating from colegio -- was killed when Army engineers did not take kindly to having their path blocked on the Pan-American Highway south of Quito.

Ecuadorans who usually pat themselves on the back while proclaiming that this Andean nation has avoided the violence so common in the neighboring republics of Colombia and Peru were shocked by the vehement intensity of the November riots. After the initial shock wore off, many more were wondering why colegio and university students were busy building barricades instead of burying their noses in the books. Even before the riots began, Oswaldo Dávila Andrade, former planning chief for the Consejo Nacional de Desarrollo (CONADE), sobered educators here when he criticized a practically free and open-admissions university system that has become overburdened with 300,000 students in 1989 compared to just 3000 in 1950.

Dávila's research had been preceded by others similar in tone and warning. Dr. Estuardo Arellano, a prominent Ecuadoran educator who has studied in Rome and Paris before settling down to teach at the Central University, angered many of his more radical colleagues when he argued against the "irrational" politicization of public university education in Ecuador in his most recent book, Autocrítica de la Universidad, that came out earlier in 1989. Arellano and Dávila both blamed an unhealthy focus on politics for the fact that anywhere from 50-90% of all the students entering the Central University fail to finish their chosen courses of study.

Experts whose job it is to evaluate and improve Ecuador's university education generally agree that something must be done, but are often bitterly opposed in their ideas for reform. Sociologist Nicanor Jácome combines his teaching duties at the Central University and as the education officer for CONADE. "You must remember," he remarks, "that universities in South America have never been linked to the productive forces in society." Instead, universities in South America, particularly since the 1950's, have struggled in contradiction with society. "During the years of military dictatorship, universities were the last refuge of democracy -- and of course, Marxism -- on the continent. We grew complacent with providing the opposition."

And yet, with Chile's December 14th free election of Patricio Alwyn to replace General Augusto Pinochet, the continent is nearly free of dictator-



"How cool to go out and protest furiously against the cost-of-living -- but, that's right, only during classtime!" Taken from the Quito daily, El Comercio, 25 November 1989.

ships (Paraguay being the one confusing exception). There remain, however, undeniably golden opportunities for students to vent their anger against the United States. University students in both Guayaquil and Quito wasted little time in bombarding the U.S. Embassy buildings in Ecuador with paint balloons after news of the U.S. invasion of Panama reached this country on 21 December. But once U.S. troops catch up with Panamanian "caudillo" General Manuel Antonio Noriega, where are the students -- Ecuador's self-appointed conscience -- when the shooting stops?

Most likely, the students will be unemployed. One recent editorialist summed up his countrymen's feelings when he wrote, "People believe that a taxi driver will earn more than a lawyer." This belief is backed up by Oswaldo Dávila's own work: Dávila reported that public university students are represented disproportionately among this country's young and unsuccessful job-seeking adults. That is saying a lot when one considers that official unemployment is set at 21%, and underemployment hovers around

50%. And to Milar, it does not take a genius to figure out why. "Very few students come from truly old or wealthy families," he explains, "so when they graduate, they have no "muñeca", or connections, that will land them a job in a public ministry or a private company. Grades matter less than family pedigree."

In fact, not even all the poor students who need to work while studying are able to find a part-time job. Newspaper advertisements for work regularly add that students are unwelcome to apply. Since Ecuadoran labor laws require that an employer pay on the basis of 8-hour "jornales", or shifts, little desire exists to pay an hourly rate. Thus, most employers demand that prospective employees commit themselves to a complete, 40-hour workweek. Then too, students are suspect because of businessmen's fears that the students will become troublemakers, trying to exhort fellow employees to strike for higher wages.

If "muñeca" were the only reason that public university students fail to find jobs, the problem could be addressed easily. Anonymous civil service exams, equal-opportunity legislation -- these measures have attacked discrimination elsewhere and might be effective in Ecuador. But the crisis runs deeper, and strikes at the very heart of education: quality versus quantity. In opting to provide mass university education without selective criteria, Ecuador's education policymakers have been left with the lowest common denominator -- and it is very low and common indeed.

Since university entrance examinations were abolished in 1969, the number of students matriculating in public universities has grown an average of 15% each year. To meet the demand, new universities were created. Where there were 4 universities in 1950, there are 23 in 1990. And two-year vocational schools have proliferated madly as well -- totalling some 230 in 1988 -- even though the InterAmerican Development Bank recommended in an unpublished report to Ecuador's Education Ministry that only 28 were worthy.

Given the flood of students into public universities, professors are rarely able to attend to students' needs. It does not help that professors often are appointed more for the correctness of their political views than for any outstanding, published scholarship. The few neutral thinkers that persist in teaching increasingly find Ecuadoran students ill-prepared for the challenges of learning. One Central University professor told this writer that he simply could not assign more than 150 pages of reading per semester. "If I assign more, the students claim that they are too poor to purchase the photocopies." Admittedly, at 25 sucres per copy, it does not take long for the pages to add up, especially for a family getting by on the minimum monthly salary of S/. 32,000. But the decline in teaching standards -- and hence, learning -- can be linked also to the bad habits inculcated in secondary schools. Before entering the university, most public school students are brought up memorizing trivial details of history or literature that bear little or no resemblance to cognitive thinking. The same Central University professor concludes, "My students confuse the mere fact of class attendance with the rigorous process of reflection."

And why not? Until August 1989, enthusiastic students could enroll at the Central University for the price of a pack of cigarettes: 500 sucres. After 25 years of frozen tuition rates, that institution finally moved to raise matriculation fees to an annual rate of S/. 10,000. Other institutions have lagged behind the Central University's example, fearful of student violence and strikes. Hopeful engineers still pay just 700 sucres

for the right to attend one year of classes at the National Polytechnic Institute. Even with substantial increases in tuition like that imposed by the Central University, public education is much less expensive than private schooling. The Jesuit Order, more renowned for the quality of its teaching than the size of its deficits, charges S/. 30-60,000 per month to attend the Catholic University of Quito. This monthly quota is in addition to the initial S/. 30-40,000 matriculation fee per semester (the fee spread reflects varying tuition rates that depend on a family's income).

If Ecuadoran students are not paying the bill for public education, then who is? Some prominent educators would prefer not to answer this question. Dr. Tiberio Jurado, Rector of the Central University, stated publicly in a recent interview that, "The university crisis is not only financial, but structural too." Dr. Jurado is in a position to know, sitting as he does atop a mountain of university debt that reached S/. 3.5 billion at his institution alone in 1989.

Actually, a boom economy that lived off of seemingly endless oil revenues in the 1970's and early 1980's fueled most of the wasteful spending [See WLM-17]. Government budget outlays for universities were -- and still are -- formulated largely on a headcount basis. This gave rise to a curious phenomenon: autonomous universities, whether in Quito or Cuenca, began to fabricate statistics meant to draw more money to any one, particular university. The universities became, in effect, small fiefdoms in which rectors ruled in competition with their colleagues, each eager to snatch the highest budgetary allocation. Would-be reformers are only now feeling the effects of the dubious largesse. Complains Guido Rivadeneira, Director of Investigations for the Consejo Nacional de Universidades y Escuelas Politecnicas (CONUEP), "Almost no reliable data exist to tell us where Ecuadoran universities have been in the last two decades, much less where they should go in the future."

Despite the padded figures that reveal a university system with vested interest in attracting more students than it could dream of educating properly, government funds allocated to public higher education have remained nearly constant in real terms since 1979: S/. 2.27 billion a decade ago compared to S/. 2.09 billion in 1988. But constant budgets and a growing student body have meant less money for research. The United Nations Educational, Scientific, and Cultural Organization (UNESCO), estimates that money spent on scientific research should measure at least 1.0% of a nation's gross domestic product (GDP). According to a preliminary study released by CONUEP, Ecuador came close to the UNESCO target for the last time in 1983, when research funding was 0.83% of GDP. By 1987, spending on research had dipped to only 0.04% of GDP, adjusted for inflation.

Such trends bother Fabian Carrión, chief of technical development for Ecuador's Consejo Nacional de Ciencia y Tecnologia (CONOCYT). "Ecuador would be hard pressed to replicate the export-led-growth model of Asia's 'Four Tigers'. We are not even close to Brazil yet." Carrión lays the blame on an internal market too small to generate domestic interest in research coupled with commodity-based export economy (cacao, bananas, oil) in which private companies have found it cheaper and faster to utilize the services of foreigners when technical difficulties arise.

Of course, one can hardly expect Ecuador's private sector to be bullish on joint-research ventures with public universities, given the

occasionally histrionic and nearly always anti-business views put forth by public university students and administrators alike. Leonardo Vicuña Izquierdo, an economist and Vice-Rector of the University of Guayaquil, has compiled a series of his speeches into a short volume titled Universidad y Desarrollo. In one speech, Dr. Vicuña lashes out at oil companies for not funding a petrochemical research laboratory on his campus. That does not stop the economist from railing against the evils of transnational companies and capitalism in another address to a different audience.

The Ecuadoran private sector has not been wholly unresponsive to the needs of training. Fabian Carrión is quick to point out, "As the oil reserves are depleted, the public and private sectors are beginning to realize that they need to cooperate." The CONOCYT representative explained one such instance, in which the Ecuadoran Cámara de Industrias is funding eight separate textile research mills in the sierra to increase productivity and quality control. But the examples of trust between business and university are still few and far between, and Carrión admits that the private sector is unlikely to invest heavily in education and scientific research without knowing exactly how its money is being spent.

Franciso R. Sagasti, a Peruvian industrial engineer currently serving as the World Bank's division chief of Strategic Planning, complements Carrión's comments in a January, 1989, Intersciencia article, "Vulnerability and Crisis: Science and Techology in Peru During the 1980's". Although Sagasti's data are not the most recent, the author still gives a pretty dramatic idea of where Ecuador stands relative to her Andean neighbors in matters of science and technology:

RESEARCH IN THE ANDES:  
INDICES OF SCIENTIFIC AND TECHNOLOGICAL PRODUCTIVITY  
(R&D expressed in millions of US \$)

<u>Country</u>	<u>Projects/ Authors</u>	<u>Investig./ Authors</u>	<u>\$ R&amp;D/ Authors</u>	<u>Projects/ Patents</u>	<u>Investig./ Patents</u>	<u>\$ R&amp;D/ Patents</u>
Colombia	15.81	42.58	0.38	49.19	132.47	1.19
Chile	2.87	4.18	0.09	43.82	63.80	1.39
Ecuador	39.71	54.17	0.83	139.00	191.50	2.91
Peru	48.52	53.98	0.71	118.03	131.30	1.74
Venezuela	7.94	8.58	0.59	29.82	32.22	2.22

NOTE: Data sourced from different years: Colombia (1982), Chile (1982), Ecuador (1979), Peru (1980), Venezuela (1980).

Ecuadorans could profit to note that while it only required some 32 investigators to invent an idea, process, or article worth a patent in Venezuela, it took 139 investigators to accomplish the same feat in their own country. It merits review also that Chileans managed to spend just US \$90,000, on average, to publish research in an international science journal, whereas Ecuador squandered each time US \$830,000 to duplicate the effort. And Colombia proved better than Ecuador too, needing but 15.8 research projects to produce an author. Ecuador needed almost 40. Ecuador fared pretty badly in the other measures of productivity as well, losing but once to Peru for the honors of least efficient. At least Peru had an excuse in the 1980's: its economy was crippled by terrorism and runaway inflation. Come to think of it, where did all those rioting students go again?

As ever, *W.C. Melvin*

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