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AUTHOR Kraft, Richard J.  
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## ABSTRACT

Education, according to various established criteria, can be classified as an industry, and in many African nations, it is the largest industry. Yet, when judged by standard measures of industrial success, such as whether the economic outcomes justify the amount spent, the answer is generally no. The thesis that most African nations are attempting to educate too many students too fast at too high a cost can be supported by a consideration of the economic, political and social consequences of these actions. For example, the location of schools in highly developed areas, which is dictated by the lack of transportation facilities, results in an increased educational gap between urban and rural population; large financial deficits have accrued in attempting to meet the projected educational expansion; African cities are flooded with unemployed primary and secondary graduates. Measures which may be politically unpopular will have to be implemented to make education in Africa a productive enterprise, such as tailoring the curriculum to the needs of an agricultural nation; consider shifting financial allotments from education to industry in order to provide jobs; limiting educational opportunity. (A bibliography, topical maps and tables of educational statistics are attached.) (JLB)

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The Education "Industry" in Africa

by

Richard J. Kraft

University of Colorado  
School of Education  
Boulder, Colorado

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The Education "Industry" in Africa

An industry has been defined as "any department or branch of art, occupation or business; esp., one which employs much labor and capital and is a distinct branch of trade." If one is to accept this definition by Webster, one can include education, as it is involved as an art, an occupation, and a business, and without any question employs a great amount of capital and labor. Education also fits the definition of the Standard Industrial Classification, as "an economic unit which produces goods or services." Educational services are given the group numbers 821-829, while the three areas to be dealt with in this paper are classified by the industry number 8211 for Elementary and Secondary Schools, 8221 for Colleges, Universities and Professional Schools, and 8222 for Junior Colleges and Normal Schools.

Having established the fact that education can be classified as an industry, the next fact is that in many African nations it is the largest industry. Size can be measured in the amount of capital and labor employed, size of buildings, numbers of people involved, amount and value of land used, or numerous other standards of measurement and by most of the standards, the education industry leads the way.

Vast amounts of data have become available on African Education within the past six years, since many of the African nations have gained their independence and become members of the United Nations. A large portion of the statistics have been gathered by U.N.E.S.C.O. and are a direct result of the most important conference on education in Africa's history, the Addis Ababa Conference of May, 1961. The Reports of that conference and

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of annual follow-up meetings, give the most reliable and comprehensive statistics. The Development Plans for each African Nation prepared by the International Bank for Reconstruction and Development, provide a comprehensive look at all the industries, past, present, and future and gives important data on the place education has played and must play in the future development of each nation. U.N.E.S.C.'s International Yearbook of Education, and Statistical Yearbook are two major sources dealing with statistics on almost every topic in education, from cost of buildings to number of pupils enrolled. Each African nation has a Bureau of Statistics and the Statistical Abstracts of these bureaus also provide one with a wealth of information. The last source to be dealt with in the body of this paper is the U.N.E.S.C. publication, National Plans of Education, which not only contains a vast array of statistics, but also gives a rationale for the various projections in enrollment and expenditures. Other sources of information are listed in the bibliography of this paper.

As was mentioned earlier, a great amount of data has become available since 1961, but as far as the total amount is concerned, it is still very small compared to educational statistics available in the United States or Western Europe. Important statistics in education deal with enrollment figures, expenditures for salaries, buildings, and our respective age levels, targets for the future, number and training of personnel, wastage rates, location and numbers of institutions, ratios of students to school age population, ratio of boys to girls, and in recent years, attempts to quantify the contribution of education to the economic growth of a country. Numerous problems, however, present themselves when dealing with African educational statistics, because of the lack of trained

census takers, tribal customs, national pride, and other factors which cause most of the statistics to be quite inaccurate. An example of this inaccuracy is the recent claim of Congo-Brazzaville to be educating 105% of all elementary age children.

The topics which the rest of this paper will deal with are the vast problems facing African education today and in the future, with a back round thesis that most African nations are attempting to educate too many students at too high a cost and at too fast a rate. Maps, charts and other data will be used in this general description of African educational systems.

#### Outline Plan of Attack on the Problem of Overeducation in Africa

**Problem:** Formal Education in many countries in Africa today is overextended by attempting to educate too many students, at too high a cost, and at too fast a rate, without considering the economic, political, and social consequences of the actions taken.

#### I. Economics and Education.

- A. The relationships of education and economics.
  1. The contributions of education to economic growth.
  2. The problems of applying principles of economics for developed countries to new developing nations.
- B. Vital Statistics in determining proper relationship of education to economic growth.
  1. Gross national product.
  2. Population.
  3. Industrial base of the country.
  4. The percent of G.N.P. spent on education.
  5. The percent of national budget and local budgets spent in education.
  6. The level of trained manpower.
- C. The financing of Education in Africa.

#### II. Educational Levels.

- A. Past and present enrollments figures.
- B. Proposed goals for future enrollment.
  1. Elementary
  2. Secondary
  3. College
  4. Adult Education.
- C. The wastage rate of pupils.

#### III. Important Factors in determining the appropriate amount of education.

- A. Tribal differences.
- B. Religious differences.
- C. Density of population - demographic projections for future.
- D. Percent of population urbanized.

- III. Important factors in determining the appropriate amount of education. (continued).
  - E. Political difficulties
  - F. Infrastructure.
  - G. Language differences.
- IV. The location of schools.
  - A. Location of schools.
  - B. Size of schools.
- V. Other problems facing African Education.
  - A. Inappropriate curriculum.
  - B. Lack of teacher preparation.
  - C. Vast illiteracy.
  - D. Education of Women.

In 1960, 40% of the elementary age pupils were enrolled in school, 3% of the secondary and .2% of the college age. These statistics, however, are misleading, as the range for elementary was 3,3% in Niger to 100% in Mauritius, and for secondary from .01 in Niger to 29.4 in Ghana. From these statistics one could conclude that what Africa needs is a vast expansion of its educational system and this is exactly what the Addis Ababa Conference proposed with the following projections.

	1960-61	1965-66	1970-71	1980-81
Primary level	10	51	71	100
Secondary level	3	9	15	23
Higher level	.02	.2	.4	2

These projections sound highly commendable, until one looks into the economic and social dislocation which such a vast expansion would entail. One must caution before going further, that the problems to be dealt with do not necessarily involve every African nation, but it would behoove even the wealthier nations to be cognizant of the dangers.

Economic geographers have gone into great detail on the importance of the location of industries in the most suitable place. Schools also must be located in the most suitable place, and it is to this that we now must turn our attention. Education is a productive enterprise and thus an analogy may be taken from Hoover, who lists the purposes of a productive enterprise as

procurement, processing, and distribution.<sup>4</sup> In the case of the education industry, it is students who are to be procured, processed, and distributed. In the United States the procuring of students for schools is a comparatively simple matter with our highly developed transportation system. In Africa the problem is not as simple as maps #1<sup>5</sup> and #5<sup>6</sup> show the lack of railroads and paved roads. Such a lack of transportation facilities necessitates the building of schools in the large cities or more highly developed areas, with the resultant educational gap between the urban and rural population. A comparison of a population map (#2)<sup>7</sup> and an educational map (#3)<sup>8</sup>, seems to bear up the thesis that in general the more heavily populated countries have a more highly developed educational system.

In the economic realm questions arise as to the amount of money to be spent on education. The question could be phrased: do the economic outcomes of education justify the amount of money being spent on it? Schultz and other economists have given an affirmative answer to this question and have gone about to prove the economic value of education. One hesitates to deny their statistics for the developed nations of the world, but questions have and should be raised about their validity for developing nations. The Addis Ababa Conference set 6% of national income, as the goal for educational expenditure by 1965, and goals were set as to the amount of money to be spent by each nation on education. Are these goals feasible? It is the contention of the writer that they are not. For example, Nigeria fell \$51 million short of its 1962 goal and the other African nations had comparatively large deficits.<sup>9</sup> Schultz also stated that "only if schooling increases future productivity and earnings do the contributions of schooling become a source of measured economic strength."<sup>10</sup> It is my

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contention that much of the education in Africa is detrimental to economic growth, and consequently much of the expenditure on education is leading to economic and social unrest.

Education in Africa has traditionally been the means to escape the farm or factory and to obtain a white collar position. This was all right as long as there were jobs available. Today, however, the cities of Africa are flooded with unemployed primary and secondary graduates. In many cities upwards of 50% of the people are unemployed, with thousands more pouring in every week. Education has prepared them for unemployment, as they no longer see the farm or any type of hand labor as fit for an "educated" person. Will more and more education solve this problem? I hardly think so. Some hard decisions need to be made about realistic numbers of people who can be absorbed into the labor market, and then these figures rigidly enforced.

Limiting educational opportunity might sound undemocratic, but it is an economic necessity for most of these nations. Some hard decisions must also be made as to the location of schools. If they are placed in the most economically suitable place, only those in the larger villages and cities would be educated and those in the farming areas would fall further behind, and yet, if one educates all those in rural areas, the expense is immense and one is only aiding the flight to the cities. One important solution to this dilemma is the changing of the curriculum to become more and more relevant to the needs of an agricultural nation. At the present time, too little is being done in the area of agricultural education, which is shown by the statistic that in a nation such as Nigeria, where 90% of the people are



engaged in agriculture, only 1.1% of all the university students are studying in that area, while 26% are studying in the humanities, a necessary area, but hardly one of such critical economic importance.<sup>11</sup> (Table 2)

Further study must be made of the economic benefits to be derived from expenditure on education as opposed to expenditure on industry. In 1962, for example, 42.19% of the total capital outlay was for education in the Congo (Brazzaville), yet the cities of that country are filled with unemployed.<sup>12</sup> Perhaps the money should have been spent on industry to provide jobs. In 1960, over 49% of all students dropped out after the first grade in Cameroun.<sup>13</sup> One cannot say that this one year of education was of any real benefit to them, and therefore, such a tremendous wastage of students was a real drain on the economy as a whole. In order to achieve the universal education planned for Addis Ababa, Ethiopia would need to spend three times the present national budget.<sup>14</sup> Is this vast expenditure worth it all? One could conclude that it might be, if education were properly conceived, and if the economic benefit of that education could be proven.

Numerous other problems could be given, one of the foremost being the Africanization of the curriculum, instead of the British and French systems which still prevail in most countries. There is also the question as to what language to use in the schools, English, French or the vernacular of which there are some two thousand. Map #7<sup>15</sup> lists some of the major groupings of language. The training of teachers leaves a great deal to be desired, with many having only a primary education. Western Nigeria has 14,000 such teachers out of only 40,000.<sup>16</sup> The education of adults and of women are issues much discussed, with a great many cultural

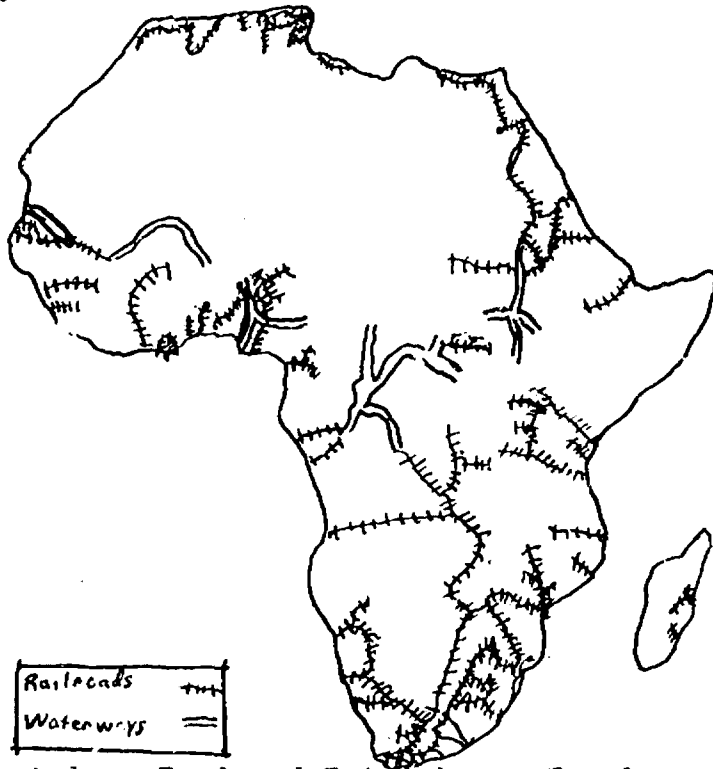
and religious issues at stake. The moslem religion has had a negative effect on education in general and women in particular, as map #4<sup>17</sup> shows, when compared to map #3.

Harbison and Myers have ranked all the nations of the world according to their gross national product, educated manpower and other relevant factors. One finds most African nations near the bottom of the ranking in both product and manpower, which points to the dilemma of nations in desperate need of trained manpower, but lacking in most cases, the economy to provide that manpower without imperiling their industrial base.<sup>18</sup>

What then are the solutions to this dilemma facing the "education industry" in Africa? One must first conclude that there are no easy answers, and that politically unpopular decisions will no doubt have to be made. The curriculum of the schools will have to be revised to include practical subjects, particularly in agriculture, and also to be made more African in outlook and purpose. Inducements will have to be made to halt the tide of urbanization and keep the young people on the farms. Leaders will have to take a more realistic look at their country's capabilities and not make forecasts which can only lead to dashed hopes. The allocation of funds will have to be carefully studied and different emphasis placed, with perhaps an 80% limit set on primary enrollment so as to enable funds to be used at the secondary and university levels. Funds will perhaps have to be withheld from education and placed in strategic industries so as to provide jobs for those being educated in the schools.

# Map #1

## AFRICAN RAILROADS AND WATERWAYS



Andrew Boyd and Patrick van Rensburg, An Atlas of African Affairs (New York: Frederick A. Praeger, 1962), p. 45.  
POPULATION DISTRIBUTION

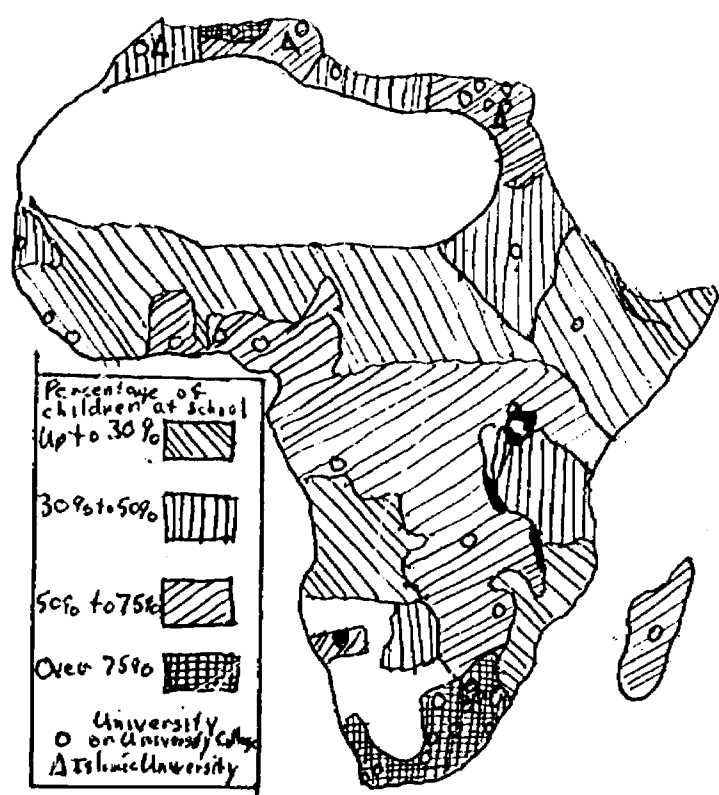
# Map #2



Ibid., p. 11.

# Map #3

## EDUCATIONAL DISTRIBUTION



Ibid., p. 39. RELIGIOUS DISTRIBUTION

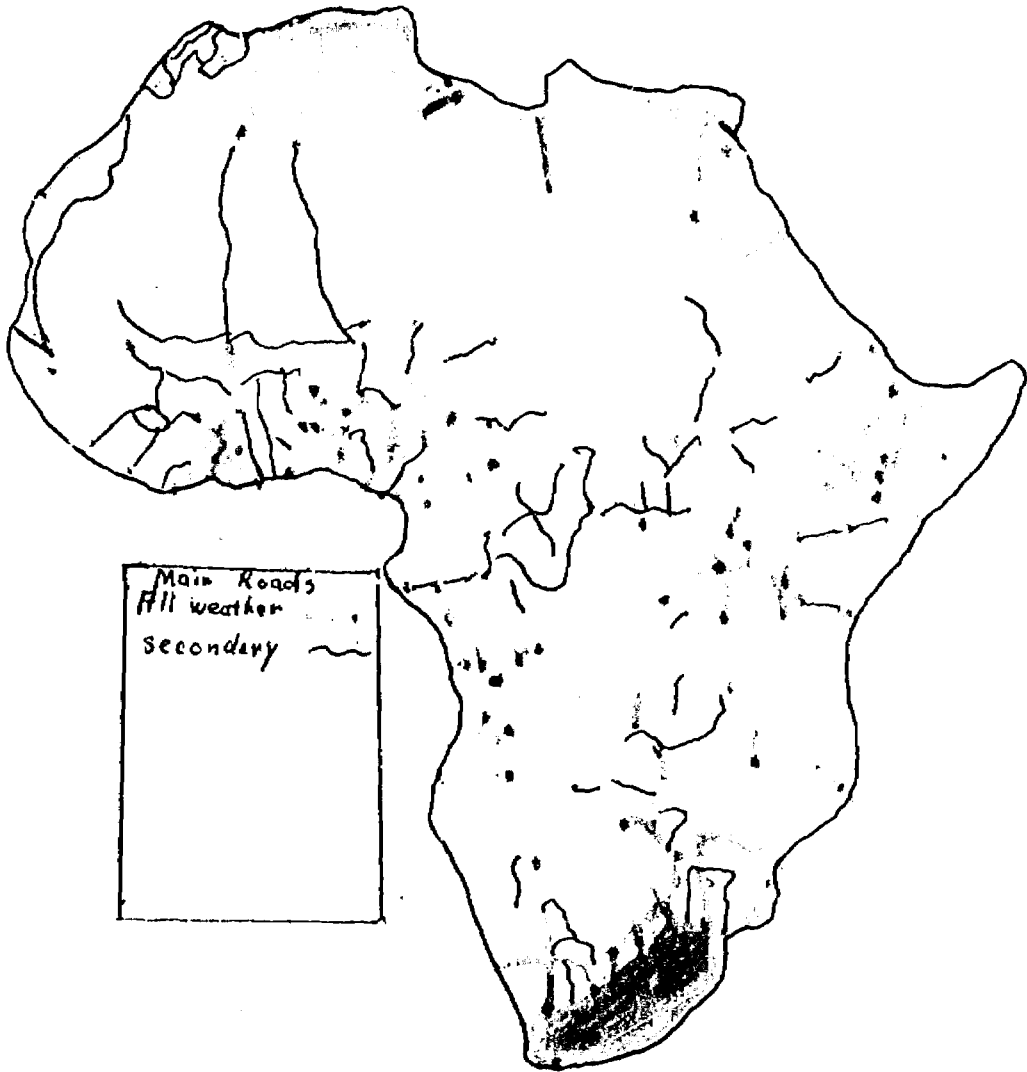
# Map #4



W. Stanley Rycroft and Myrtle M. Clemmer, A Factual Study of Sub-Saharan Africa (New York: Commission on Ecumenical Mission and Relations, 1962), p. 91.

# Map #5

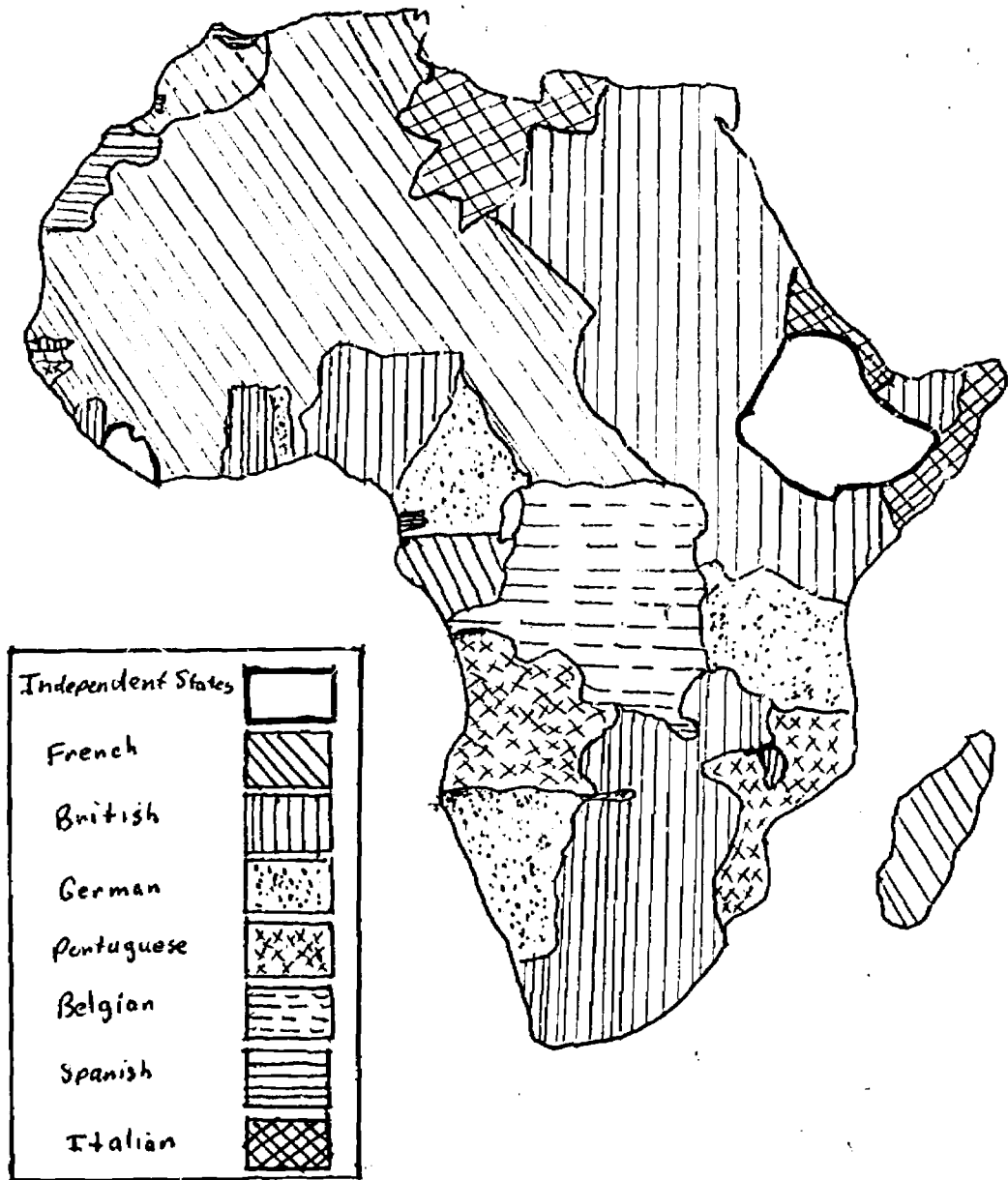
## AFRICAN ROADS



P.H. Ady, (ed.), Oxford Regional Economic Atlas  
(Oxford: Clarendon Press, 1965), p. 89.

# Map # 6

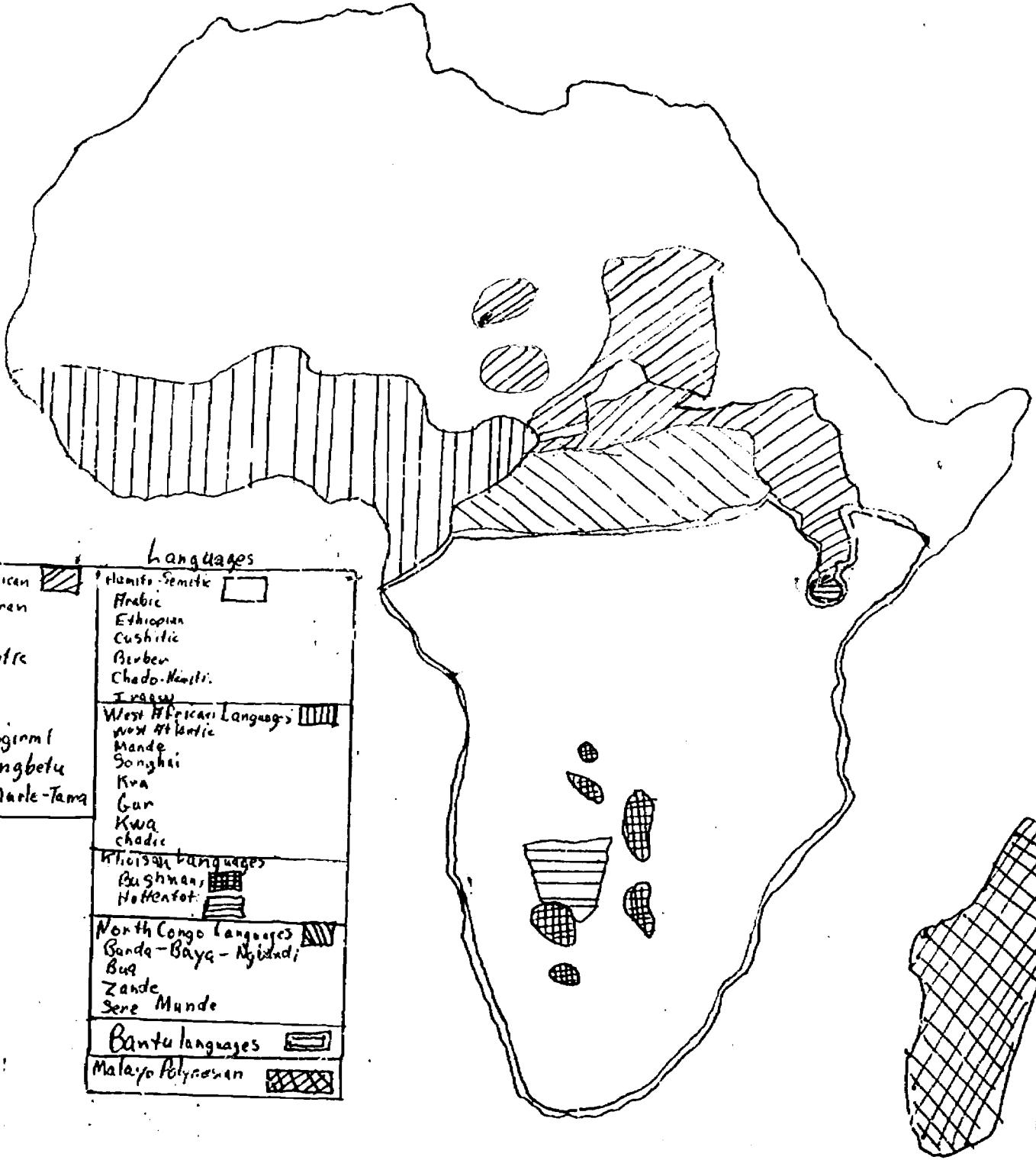
## AFRICA IN 1914



J.F. Horabin, An Atlas of Africa. (New York: Frederick A. Praeger, Publisher, 1960, pp.20-21.

# Map #7

## LANGUAGE DISTRIBUTION



Languages	
Central African	Hamito-Semitic
East Saharan	Arabic
Wolofic	Ethiopian
Nik Heritic	Cushitic
Nubian	Berber
Maba	Chado-Nubian
Bongo-Bargirmi	Traque
Moru-Mangbetu	West African Languages
Didiye-Marle-Tama	West Atlantic
	Mande
	Songhai
	Kwa
	Gur
	Kwa
	Chadic
	Nilo-Saharan languages
	Bushman
	Hottentot
	North Congo Languages
	Ganda-Baya-Ngizadi
	Bua
	Zande
	Sere Munde
	Bantu languages
	Malayo Polynesian

Ady, op.cit., pp. 1-3.

# Table I

TABLE I - EDUCATIONAL SITUATION IN AFRICA TODAY

Country	Year	ENROLMENT BY LEVEL		RATIO OF ENROLMENT TO SCHOOL-AGE POPULATION BY LEVEL			
		First level (primary schools)	Second level (secondary schools)	First level		Second level	
		No. of students	No. of students	Estimated pop. 5-14 years (000)	Ratio of enrolment adjusted to pop. 5-14 for duration of school	Estimated pop. 15-19 years (000)	Ratio of enrolment adjusted to pop. 15-19 for duration of school
Basutoland	1958	119,478	3,012	165	99.5	67	4.5
Bechuanaland	1958	21,193	485	84	46.4	34	1.4
Cameroons (U.K.)	1958	54,844	1,494	391	20.0	164	0.8
Cameroon	1959-60	371,421	54,698	795	77.8	332	3.0
Central African Republic	1957-58	45,774	1,486	280	27.2	117	9.0
Chad	1959-60	53,973	1,423	647	13.8	271	0.4
Congo (Brazzaville)	1957-58	78,962	3,259	187	70.3	78	3.0
Congo (Leopoldville)	1959-60	1,460,753	51,871	3,465	71.5	1,426	3.0
Dahomey	1959-60	31,197	3,613	431	31.3	180	1.4
Ethiopia	1958-59	158,005	3,188	5,338	3.8	2,235	0.5
Gabon	1957-58	29,763	1,156	101	65.7	41	2.0
Gambia	1958	4,595	794	72	10.7	30	2.2
Ghana	1959	433,423	178,591	1,408	56.7	506	29.4
Guinea	1959-60	79,573	4,563	671	19.7	281	1.1
Ivory Coast	1957-58	125,727	5,104	641	32.7	269	1.4
Kenya	1958	651,756	29,291	1,562	52.1	654	3.9
Liberia	1959-60	55,026	3,397	308	22.4	129	3.3
Malagasy Republic	1959-60	364,217	25,290	1,299	46.7	534	1.1
Mali	1957-58	42,053	2,749	916	7.7	384	0.5
Mauritania	1957-58	6,493	291	155	7.0	65	0.3
Mauritius	1958	169,579	16,243	153	160.0	64	18.1
Niger	1957-58	11,811	395	693	3.3	252	0.1
Nigeria	1958	2,545,336	117,414	8,129	42.9	3,403	2.9
Lagos	1958	56,688	6,376	83	85.4	35	15.2
N. Region	1958	230,000	8,098	4,439	7.4	1,358	0.3
W. Region	1958	1,037,377	73,282	1,657	100.0	694	8.8
E. Region	1958	1,221,271	29,656	1,959	78.3	816	3.0
Rhodesia & Nyasaland							
N. Rhodesia	1958-59	243,926	4,948	566	53.9	237	2.6
Nyasaland	1958	269,693	3,042	667	70.5	279	1.4
S. Rhodesia	1958	433,459	6,483	649	63.5	272	3.0
Ruanda-Urundi	1958	246,149	5,480	1,156	35.5	484	0.9
Senegal	1957-58	80,473	6,102	561	23.8	235	1.9
Sierra Leone	1959	74,481	8,277	590	21.0	247	2.8
Somalia	1958-59	16,485	1,828	325	10.2	136	0.8
Sudan	1959-60	288,395	60,941	2,819	12.8	1,180	6.5
Swaziland	1958	29,934	1,066	67	55.9	27	4.5
Tanganyika	1958	422,832	15,315	2,193	24.1	818	2.1
Togo	1959	78,639	2,373	311	31.8	172	1.0
Uganda	1959	591,699	41,633	1,603	52.2	671	4.4
Upper Volta	1959-60	49,543	2,447	991	6.8	415	0.4
Zanzibar	1958	14,982	1,232	75	25.0	31	5.0

Source: Statistics of population and pupils taken by the Unesco Statistics Division from official publications and country replies to the questionnaires.

U.N.E.C. and U.N.E.S.C.C., Cutline of a Plan for African Education (Paris: U.N.E.S.C.C. 71961), p.7.

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# Table 2

TABLE 2 - PERCENTAGE DISTRIBUTION OF STUDENTS IN HIGHER EDUCATION IN AFRICA BY BRANCH OF STUDY

Country	Academic year beginning	All Branches	PERCENTAGE DISTRIBUTION BY BRANCH OF STUDY										
			Humanities	Education	Fine arts	Law	Social Sciences	Natural Sciences	Engineering	Medicine	Agriculture	Not Specified	
Basutoland	1958	103	59.3	3.9	-	-	-	3.9	34.0	-	-	-	-
Ghana	1958	1,410	15.2	15.7	5.3	6.6	22.9	3.2	16.0	4.0	6.0	-	-
Kenya	1958	797	3.3	55.5	5.4	-	3.2	4.6	9.3	5.6	7.3	-	-
Liberia	1957	476	-	19.5	-	6.3	-	5.3	1.9	3.4	6.0	59.2	-
Malagasy Republic	1958	424	7.1	-	-	66.5	-	26.4	-	-	-	-	-
Mauritius	1958	231	-	55.8	-	-	-	-	-	-	44.2	-	-
Nigeria	1958	1,984	26.7	5.9	4.6	-	13.7	31.8	7.4	8.9	1.1	-	-
Rhodesia & Nyasaland	1958	125	42.4	22.4	-	-	-	29.6	-	-	5.6	-	-
Ruanda-Urundi	1958	4	-	-	-	-	-	-	-	-	100.0	-	-
Senegal	1958	1,458	21.7	0.3	-	39.5	1.4	21.4	1.0	12.2	2.4	-	-
Sierra Leone	1958	371	29.1	24.5	-	-	28.3	15.4	2.7	-	-	-	-
Somalia	1958	245	-	-	-	-	100.0	-	-	-	-	-	-
Sudan	1958	1,360	17.4	7.2	2.0	9.6	4.3	19.2	25.3	9.2	4.5	2.2	-
Uganda	1958	837	33.7	9.3	2.6	-	0.8	29.4	1.7	12.1	10.4	-	-

Source: World Survey of Education Vol. III (Unesco, 1961) (in the press).

of manpower is produced by institutions of higher education. In Africa, higher education facilities are woefully inadequate to produce the required manpower. Only .02 per cent of university-age youth are enrolled in higher institutions. Massive expansion at this level must be undertaken. In the meanwhile, provisions for the university training abroad of Africans must be greatly increased, particularly in those fields of study not available at home. Expansion of higher education in Africa will require not only costly new and enlarged institutions, but hundreds of expatriate professors to give instruction until Africa has an adequate number of its own scholars.

(g) Adult education. A literate population is essential to the economic development of emerging States and the fostering of literacy and of the means of maintaining literacy is one of the most important concerns of the educational enterprise. It is estimated that there are in the African States 100,000,000 people, more than half the population, who cannot read and write in any language. Such a condition is a strong impediment to progress and makes the education of adults one of Africa's most pressing needs. Adult education programmes must go beyond the teaching of reading and writing and numbers. For persons with little formal schooling, programmes must provide a kind of continuing education related to the life activities of adults and they must promote progressive understanding of the great social and technical changes taking place in Africa. Mass Communication media must be fully utilized in efforts to maintain literacy once it is achieved.

(h) Reform of teaching materials. There exists a persistent need for the reform of teaching materials at all levels. School experiences should contribute to the learner's greater understanding and appreciation both of his cultural heritage and that of all other nations and of all aspects of his nation's present and probable future. His basic and supplementary materials for study should be born of African conditions and interests. Throughout the textbooks the African child studies should run the fabric of African life and culture. Production of such material will require considerable research, writing, and publication, but its importance to the development of proper concepts and of learning experiences appropriate to the African child makes it a need of crucial urgency.

(i) Planning. Educational expansion should be carefully planned both in relation to the needs level of social and economic development of the country and the goals it wishes to attain. A need exists for planning boards or units, within Ministries of Education, to provide the specialized knowledge and services essential to effective and realistic planning for educational development as a part of overall national plans.

Ibid., p. 8.

None of these things will be easy, but only a realistic outlook will make education in Africa the productive enterprise it must be in order to lessen the gap which is continually growing between the developing and the developed nations of the world.

## FOOTNOTES

<sup>1</sup> Bureau of the Budget, Standard Industrial Classification Manual (Washington, D.C.; U.S. Government Printing Office, 1957), pp. 206-27.

<sup>2</sup> U.N.E.C. and U.N.E.S.C.O., Outline of a Plan for African Education (Paris: U.N.E.S.C.O., 1961), p. 19.

<sup>3</sup> Ibid.

<sup>4</sup> Edgar M. Hoover, The Location of Economic Activity (New York: McGraw-Hill Book Company, 1948), p. 7.

<sup>5</sup> Andrew Boyd and Patrick VanRensburg, An Atlas of African Affairs (New York: Frederick A. Praeger, 1962), p. 45.

<sup>6</sup> P. H. Ady, (ed.), Oxford Regional Economic Atlas (Oxford: Clarendon Press, 1965), p. 89.

<sup>7</sup> Boyd, op. cit., p. 11.

<sup>8</sup> Ibid., p. 39.

<sup>9</sup> U.N.E.C. Final Report. (Paris: U.N.E.C., 1962), p. 28.

<sup>10</sup> Theodore W. Schultz, The Economic Value of Education (New York: Columbia University Press, 1963), p. 39.

<sup>11</sup> U.N.E.C. and U.N.E.S.C.O., op. cit., p. 8.

<sup>12</sup> U.N.E.S.C.O., National Plans of Education (Paris: U.N.E.S.C.O., 1964), p. 6.

<sup>13</sup> Ibid., p. 17.

<sup>14</sup> Richard Greenough, Africa Calls (Paris: U.N.E.S.C.O., 1961), p. 37.

<sup>15</sup> Ady, op. cit., pp. 1-3.

<sup>16</sup> J. C'Connell, "Education, Economics, and Politics," West African Journal of Education VII (June, 1963), p. 64.

<sup>17</sup> W. Stanley Rycroft and Myrtle M. Clemmer, A Factual Study of SubSaharan Africa (New York: Commission on Ecumenical Mission and Relations, 1962), p. 91.

<sup>18</sup> Frederick Harbeson and Charles A. Myers, Education: Manpower and Economic Growth (New York: McGraw-Hill Book Company, 1964).

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A small, but valuable atlas of maps dealing with the history, education, population, infrastructure and numerous other topics.

Bureau of Statistics. Statistical Abstracts of Each Nation.

Abstracts containing important statistics on all phases of economic and social life in African nations.

Bureau of the Budget. Standard Industrial Classification Manual. Washington, D. C.: U.S. Government Printing Office, 1957.

A classification of industries into seven basic categories and hundreds of sub-groupings. Classified by the establishments major activity.

Curle, Adam. Educational Strategy for Developing Societies. London: Tavistock Publications, 1963.

An important work on the economic, social, and political strategy, to aid education in developing nations, and to provide for optimum growth and development.

Fitzgerald, Walter. Africa: A Social, Economic, and Political Geography of Its Major Regions. London: Methuen and Co., Ltd., 1962.

A comprehensive geography of Africa with over one hundred valuable maps.

Fordham, Paul. The Geography of African Affairs. Baltimore: Penguin Books, 1965.

A general geography of Africa, with several maps, and a valuable bibliography.

Greenough, Richard. Africa Calls. Paris: U.N.E.S.C.O., 1961.

A small work dealing with the history, future plans and problems of African education.

Gregor, Howard F. Environment and Economic Life. New York: D. Van Nostrand, Inc., 1963.

A comprehensive economic geography text. One of the few dealing with education, and more specifically education in developing nations.

Hance, William A. The Geography of Modern Africa. New York: Columbia University Press, 1964.

A large volume, with maps, graphs and illustrations, dealing with Modern Africa in particular, and the changes of the past decade.

Harbeson, Frederick and Charles A. Myers. Education, Manpower and Economic Growth. New York: McGraw-Hill Book Company, 1964.

A definitive work on manpower planning. It contains valuable charts, ranking nations from the least to the most developed, based on skilled manpower, educational levels, and gross national product.

Hoover, Edgar M. The Location of Economic Activity. New York: McGraw-Hill Book Company, 1948.

An important work dealing with the why of industrial location and contains valuable concepts of importance to all industries.

Horabin, J. F. An Atlas of Africa. New York: Frederick A. Praeger, Publisher, 1960.

An atlas with maps covering a wide variety of African affairs, historical, economic, linguistic, etc.

International Bank for Reconstruction and Development. Development Plans of Each Nation.

Volumes of great significance due to their comprehensive nature on all aspects of a nation's life, and due to the nature of the authors, who are drawn from many disciplines.

Jarrett, H. R. Geography of Africa. London: Methuen and Co., Ltd., 1962.

A comprehensive volume on Africa, by an author of works on several individual countries and areas.

"New Schools for New Africa: Sisting." The Journal of Education of New Africa, 1:25, 27, August, 1963.

A brief, but one of very few articles available on the topic of the location of schools on Africa. A few general concepts of value, but mostly suggestions on slope of land, size of playing fields, and other minor points.

O'Connell, J. "Education, Economics, and Politics," West African Journal of Education, 7:64, June, 1963.

An important article, by a leading African authority on the relationships of politics, economics, and education, and the need for more solid study and thinking on the relationships of the three.

Rycroft, W. Stanley and Myrtle M. Clemmer. A Factual Study of Subsaharan Africa, New York: Commission on Ecumenical Mission and Relations, 1962.

A comparatively brief, but fact-filled volume of maps, charts, graphs and brief essays on just about all areas of African life.

Schultz, Theodore W. The Economic Value of Education. New York: Columbia University Press, 1963.

The basic work by the leading economist of education, Schultz. A book which has been highly praised, but its application to developing nations has been questioned.

U.N.E.C. Final Report. Paris: U.N.E.C., 1962.

The summary statement of U.N.E.C. on developments of education in Africa, since the Addis Ababa conference of 1961.

U.N.E.C. and U.N.E.S.C.O. Final Report, Conference of African States on the Development of Education in Africa. Paris: U.N.E.S.C.O., 1961.

The report issued at the Addis Ababa Conference, containing lists of participants, speeches, and the proposals passed by the conference.

U.N.E.C. and U.N.E.S.C.O. Outline of a Plan for African Educational Development, 1961.

An outline of the basic work done at the Addis Ababa Conference, with a few statistics on enrollments and goals for the future.

U.N.E.S.C.O. Economic and Social Aspects of Educational Planning. Paris: U.N.E.S.C.O., 1964.

A book of essays by U.N.E.S.C.O. officials and others on planning in education, and the social and economic role it plays.

U.N.E.S.C.O. National Plans of Education. Paris: U.N.E.S.C.O., 1964.

A brief discussion of national plans and of planning agencies of almost all U.N. member nations.

U.N.E.S.C.O. Statistical Yearbook. Paris: U.N.E.S.C.O., 1963.

The latest comprehensive statistical yearbook of U.N.E.S.C.O., dealing with all aspects of each country's life, both individually and comparatively.

Vinge, C. L. and A. G. Vinge. Economic Geography. Totowa, New Jersey: Littlefield, Adams and Co., 1966.

An authoritative work on economic geography containing a valuable appendix bibliography of periodical literature in the field, and a listing of the Standard Industrial Classification.

# Table 3

Apparent wastage rate, grades II to VI

GROUP I	School year	I - II	II - III	III - IV	IV - V	V - VI
ALABAMA	1957-58	39.3	3.4	31.0	9.9	28.6
	1960-61	35.9	0.1	29.0	9.8	24.1
ALASKA	1960-61	58.0	7.3	25.0	6.3	- 15.6
	1957-58	28.7	8.7	6.9	9.3	6.2
ARIZONA	1958-59	26.5	9.6	6.9	8.3	4.8
	1959-60	13.2	11.4	14.3	10.7	
ARIZONA (TULSA)	1960-61	6.1	4.2	18.4	12.0	
	1956-57	5.9	4.3	- 1.7	60.3	2.3
ARIZONA (TULSA)	1957-58	10.4	5.0	0.8	62.7	8.6
	1958-59	14.8	15.6	20.1	15.5	
ARIZONA (TULSA)	1959-60	8.1	10.9	17.4	9.7	
	1960-61	19.9	- 3.3	6.0	6.2	21.2
ARIZONA (TULSA)	1961-62	12.1	1.1	9.8	7.4	23.6
	1955-56	26.9	12.6	8.0	18.2	- 1.1
ARIZONA (TULSA)	1966-67	25.8	10.4	17.7	16.9	21.1
	1959-60	49.9	28.7	23.7	11.6	2.7
ARIZONA (TULSA)	1960-61	10.6	20.0	8.0	- 1.8	-1.1
	1959-60	27.3	16.0	11.7	13.1	1.1
ARIZONA (TULSA)	1960-61	29.4	16.3	11.3	11.4	- 1.1
	1961-62	33.7	12.6	13.1	12.1	
ARIZONA (TULSA)	1960-61	16.7	16.0	14.0	16.1	
ARIZONA (TULSA)	1960-61	18.3	29.2	23.6	12.1	-15.7
ARIZONA (TULSA)	1960-61	35.5	14.9	14.3		- 1.1
	1960-61	37.2	15.8	18.1		- 6.3
ARIZONA (TULSA)	1960-61	10.1	1.0	- 12.0		
	1960-61	6.3	- 1.5	- 11.9		
ARIZONA (TULSA)	1960-61	13.1	25.1	19.0		
	1960-61	13.1	22.9	18.1		

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U.S.E.S.C., National Plan of Education (Paris: U.S.E.S.C., 1957), pp. 17-18

GROUP II (suite)	School year	I - II	II - III	III - IV	IV - V	V - VI
NIGERIA (LAGOS) ...	1955-56	20,2	2,35	8,8	14,0	9,7
	1956-57	4,5	2,4	7,9	5,7	3,9
NIGERIA (E.) .....	1957-58	18,4	32,4	21,5		
	1958-59	10,5	10,8	15,3		
NIGERIA (N.) .....	1955-56	31,1	12,2	10,2		
	1956-57	21,8	11,4	2,1		
NIGERIA (W.) .....	1957-58	18,8	2,7	17,8	5,2	9,6
	1958-59	21,4	4,8	12,2	21,3	11,2
NYASSALAND .....	1958-59	35,0	34,7	23,8	5,9	
	1959-60	43,9	39,8	26,5	6,6	
	1960-61	42,3	31,4	22,5	2,2	
SENEGAL .....	1960-61	4,2	11,8	6,3	8,4	- 3,9
	1961-62	3,6	9,1	6,2	4,5	-10,9
SIERRA LEONE .....	1959-60	21,4	- 3,0	15,0	10,6	15,4
	1960-61	33,0	4,5	9,2	5,9	11,4
TANGANYIKA .....	1955-56	14,9	8,1	7,0		
	1956-57	13,5	9,0	5,2		
	1957-58	12,5	9,3	4,4		
	1958-59	10,6	8,5	3,4		
	1959-60	9,2	7,4	3,1		
	1960-61	- 6,4	1,0	- 5,7		
UGANDA .....	1958-59	13,0	6,7	7,8	15,8	5,4
	1959-60	15,7	7,4	9,7	16,9	7,7
	1960-61	12,7	2,1	3,9	10,3	0,7
ZANZIBAR .....	1954-55	4,4	3,4	7,3	6,4	- 3,3
	1955-56	9,6	7,3	6,3	10,7	3,8
<b>GROUP III</b>						
CHAD .....	1960-61	60,0	21,0	28,2	8,7	-17,8
MALI .....	1959-60	8,8	13,1	5,0	8,7	- 7,5
NIOEK .....	1959-60	22,2	- 6,7	8,4	17,9	5,8
	1960-61	10,7	19,9	15,6	5,7	10,9
	1961-62	6,5	22,7	11,8	- 0,6	- 7,2
UPPER-VOLTA .....	1957-58	21,6	9,0	14,7	23,5	9,0
	1958-59	16,1	12,7	14,3	12,8	-13,3

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