(France) and Y. Katznelson (Israel) showed that Carleson's result is "best possible" [*Studia Math.* **21**, 305–306 (1966)]. They proved that, given an arbitrary set of measure zero, there exists a continuous periodic function whose Fourier series diverges on the given set.

A set of measure zero (equivalent to the concept of zero probability) is a set on which one can change arbitrarily the values assumed by a (Lebesgue) integrable function without altering the value of the integral.

The failure of Fourier series to reproduce for all values its generating function, even when that generating function is continuous (a fact known since 1876) naturally has led mathematicians to consider the problem of constructing, if possible, systems analogous to the Fourier trigonometric system $\{1, \sin x, \cos x, \ldots, \sin nx, \cos nx, \ldots\}$ which have the property that the Fourier series constructed from them will reproduce continuous generating functions. Systems of great importance having this property were brought to light, but none of them possessed all the fundamental properties of the trigonometric Fourier sequence.

At the Congress, a young Soviet mathematician, A. M. Olevskii, showed that nothing better can be done. More precisely, he proved that there exists no uniformly bounded, orthonormal system such that the Fourier series (with respect to that system) of an arbitrary continuous function must always reproduce that function everywhere. Together with related interesting results, he has published this in the *Izvestiya* of the Academy of Sciences of the U.S.S.R. [Math. Series, **30**, 387–432 (1966)].

From the work which I have described, the Moscow conference would seem to be characterized more by the solution of famous problems than by the indication of new directions. Those able to evaluate other work presented may provide a different impression.

The most important new paths will probably result from the informal discussions among the 4300 mathematicians who gathered from 54 countries. This represented the first large-scale contact between the mathematical communities of the U.S.S.R. and non-socialist countries, undoubtedly the most valuable contribution of the Congress.

Another value of the Congress, simply by virtue of its existence, is that it assembled enough mathematicians in one place so that nearby areas could schedule highly specialized conferences for much smaller groups (about 300 each) to present and discuss research on tightly knit topics. Czechoslovakia, Finland, Hungary, Italy, and Poland were sites of such gatherings, either just before or just after the Congress.

The holding of a scientific congress is clearly regarded as a great event in the U.S.S.R. A special stamp was issued by the postal authorities; the Soviet press carried extensive accounts both of the ICM and on the subject of mathematics itself, before, during, and after the Congress. For example, both academician I. G. Petrovskii (rector of Moscow University and president of the ICM) and V. G. Karmanov (Secretary of the ICM Organizing Committee) published feature-length articles on mathematics.

There were interviews with both Soviet and foreign mathematicians. In one such interview, Fields Medalist Cohen expressed high praise for Moscow University, for Soviet mathematical life generally, and characterized the organization of the Congress as "perfect." He added that the participants had "every opportunity for fruitful work, to see Moscow, and the life of Soviet people."

In closing this report, it may be particularly appropriate to recall the words of the late O. Veblen, after whom the American Mathematical Society named its research prize in geometry. As president of the ICM in 1950, when it met in the United States, he concluded his address with these words:

"To our non-mathematical friends we can say that this sort of a meeting, which cuts across all sorts of political, racial, and social differences and focuses on a universal human interest, will be an influence for conciliation and peace."

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## Chromosomes and Leukocytes

At a conference "Leukocyte Chemistry and Morphology Correlated with Chromosome Anomalies" (New York, 3–5 November 1966), several papers on the etiology of Down's syndrome (trisomy-21 or mongolism) were presented. These included data that the familial form of trisomy-21 represents a hereditary tendency for ovogonial nondisjunction, which increases with maternal age. Significantly more mothers of patients with Down's syndrome and gonadal dysgenesis had thyroid autoantibodies.

The status of information on meiotic chromosomes, the incidence of sex-linked and autosomal chromosomes, and the phenotypic expressions in patients with sex chromosome anomalies was discussed.

Viruses and radiation were subjects of papers on the absence of metaphase figures and other chromosomal aberrations in cultures of leukocytes from patients infected with measles virus, and on polyploidy and endoreduplications in cultures of leukocytes taken from patients after therapy with cobalt-30, iodine-131, and x-irradiation.

Morphological changes in the nucleus and the limiting membranes of polymorphonuclear leukocytes were also described. Characteristic nuclear projections were present in neutrophils of patients with trisomy D(13/15), but did not occur in neutrophils of patients with trisomies E or 21. A direct correlation was reported between the size of the X chromosomes and that of the drumsticks in neutrophils. The XXY karyotype lowered the incidence of drumsticks, but did not affect that of Barr bodies. Limiting membranes in the polymorphonuclear leukocytes are abnormal in patients with the Chediak-Higashi and Batten's syndromes, both of which represent the homozygous expression of autosomal recessive genes. A high incidence of abnormal granules in leukocytes is associated with the carrier state of Batten's disease.

Leukocyte alkaline phosphatase activity (LAPA) is absent or very low in most patients having chronic myeloid leukemia (CML) and the $Ph^1$ chromosome. However, reports in the literature that the LAPA index increases during remissions after busulfan therapy were not confirmed. Elevations of the LAPA index are considered of diagnostic value in indicating the possibilities of infection and ulcerative colitis in patients with CML. In addition, this LAPA index is useful in differentiating polycythemia vera from secondary erythrocytosis, and chronic granulocytic leukemia from leukemoid reactions. The absence, or a very low level, of LAPA is not characteristic of atypical cases of CML, and this index is not useful in differentiating other myeloproliferative syndromes.

Cytochemical assessment of LAPA by Kaplow's method is an inexpensive,

simple, and accurate method for indicating hormonal changes during pregnancy and the postpartum period. However, the cause and effect relations between LAPA and sex hormones are not known. An elevated LAPA index was considered a better test for pregnancy than the *Rana pipiens* or the human chorionic gonadotrophin tests.

Several hypotheses on regulatory mechanisms of LAPA were presented. The gene-dosage hypothesis would account for the abnormalities resulting in trisomy-21 in children and in strains of cultured leukocytes from patients with trisomy-21. Other suggestions on the mechanism of LAPA control included the possibilities of a complex interaction of physiological and genetic determinants, hormonal action on granules of neutrophils, the presence of several types of granulocytes in blood, and a shorter half-life of neutrophils in Down's syndrome.

Leukocyte glucose-6-phosphate dehydrogenase (G6PD), which is sex-linked in man and other animals, is also elevated in Down's syndrome. Three lines of evidence indicate that genetic control of G6PD is the same in leukocytes as erythrocytes.

A monograph containing the 30 papers will be published by the New York Academy of Sciences, the sponsor of this conference.

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## Forthcoming Events

### March

*8–10.* **Viscoelastic Response of Engineering Materials**, Boston, Mass. (R. H. Supnick, 4 Mercer Rd., Natick, Mass.)

*9–11.* National **Medicolegal** Symp., Miami Beach, Fla. (Miss B. Spies, Law Dept., American Medical Assoc., 535 N. Dearborn St., Chicago, Ill. 60610)

*10–11.* National Conf. on **Rural Health**, Charlotte, N.C. (B. L. Bible, Secretary, American Medical Assoc., 535 N. Dearborn St., Chicago, Ill. 60610)

*10–12.* American Assoc. of **Pathologists and Bacteriologists**, Washington, D.C. (J. L. Orbison, School of Medicine and Dentistry, Univ. of Rochester, 260 Crittenden Blvd., Rochester, N.Y.)

*10–15.* American Assoc. of **Pathologists** and **Bacteriologists**, 64th annual mtg. and Intern. Acad. of **Pathology**, 56th annual mtg., Washington, D.C. (Miss J. Graves, Intersociety Committee on Pathology Information, 1501 New Hampshire Ave., NW, Washington, D.C. 20036)

*12.* **Mental Depression**, symp., Washington, D.C. (Dr. Z. M. Lebensohn, 2431 K St., NW, Suite 215, Washington, D.C. 20037)

*13–14.* **Astronautics**, symp., Ottawa, Ont., Canada. (The Secretary, Canadian Aeronautics and Space Inst., 77 Metcalfe St., Ottawa 4, Ont.)

*13–14.* State Univ. of New York, Downstate Medical Center, "Visiting Scholar Lecture Series," **Arnold J. Toynbee**, Brooklyn, N.Y. (Office of Public Relations, Downstate Med. Ctr., 450 Clarkson Ave., Brooklyn, N.Y. 11203)

*13–15.* 32nd North American **Wildlife and Natural Resources** Conf., San Francisco, Calif. (Wildlife Management Inst., 709 Wire Building, Washington, D.C. 20005)

*13–17.* International **Laboratory Apparatus** and Materials Exhibition, London, England. (U.T.P. Exhibitions Ltd., 3 Racquet Court, Fleet St., London E.C.4)

*13–17.* Use of **Plutonium as a Reactor Fuel**, intern. symp., Brussels, Belgium. (J. H. Kane, Div. of Technical Information, U.S. Atomic Energy Commission, Washington, D.C. 20545)

*14–15.* American **Astronautical** Soc. 5th Goddard Memorial Symp., "The Voyage to the Planets," Washington, D.C. (M. B. Lees, General Electric Co., Defense Programs Div., 777 14th St., NW, Washington, D.C. 20005)

*14–15.* **Space**, natl. mtg., Los Angeles, Calif. (D. P. Chandler, 3370 Miraloma Ave., Anaheim, Calif. 82803)