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Nordic Statistical Journal. Volume 1. Edited by THOR ANDERSSON. Stockholm 1929. Pp. 639. Reviewed by Dr. phil. CARL BURRAU.

We, the inhabitants of the Nordic countries, are perhaps somewhat inclined to take a certain inner pride in our — as it seems to us — high civilization and to attach still more importance to ourselves in this respect during the later years, when the "Ragnarök" of the great war had devastated most of the other civilized countries and handicapped them in their competition with us. Let us hope that there are some good grounds for our selfsatisfied opinion! It is not difficult to find some facts indicating that we are right in this self-respect, even if we go to the very summits of civilization — let us think of the "Acta mathematica", for instance. But if we are right, it may be very necessary for us to be on our guard against the danger of stagnation, of the standstill, where we begin to lull ourselves into the pleasant dream that our position is unshakeable, and that we may now repose on our laurels. Therefore, we must honour the persons who do not allow us to go to rest, the persons who spur us on to do our very best

Thor Andersson is one of those whom we must honour for such an influence. In the field of statistics he seeks to be our scientific conscience. He swings his whip over our heads mercilessly and drives to activity everybody who is able to produce something, however small or great, within the field of statistics. But he is not content with that! He is not content with the achievement of having filled a long and imposing row of volumes of the "Nordisk Statistisk Tidskrift" with valuable essays and treatises written by Scandinavian as well as by leading foreign authors — all the non-scandinavian countries are now to see and feel the warmth of the light from the North. His journal is now to become an inter-

national publication, but still with an indication of its Nordic origin in its title. The first volume of the "Nordic Statistical Journal" — simultaneously forming the 8th volume of the original journal — has appeared. And it is not a trifling thing, this volume of 639 pages in great octavo! It is great in its composition, still more soaring in its purposes and ends for the future, and promising, when we consider what "the man at the wheel" has collected in these 639 pages by means of an unusual perseverance in unflinching love for the task and in spite of many — too many — external adversities.

The leading thought of the work is the same as, now soon a decennium ago, led Thor Andersson to found the *Nordisk Statistisk Tidskrift*. It is a child of the Greeks' idea of chaos and cosmos, or rather a consequent, modern continuation of this idea. Statistics is the most important means for bringing our existence over from chaos to cosmos. Statistics acquaints us with the real circumstances, and the knowledge, the real knowledge of the things, will then show how to bring things in their right places, so that the entirety becomes the arranged cosmos. But there is still much to do! We have not yet been able to elevate statistics to the rank of an observing natural science it should have, to be able to give us the real science of the things, alluded to above. In 1922 the thought was to be in the front-rank in the work for this purpose. And we have to be obliged to Thor Andersson for the strenuous work he has performed for his idea during the past years, and now it will be done on a still broader basis, i. e. for an international public, yet under Nordic leadership.

Let us study a little more closely how this new volume I seeks to perform its work in the service of the mentioned idea.

With, in a good meaning, a journalistic feeling for actualities the volume appears as a sort of jubilee-gift to *Bortkiewicz* on his sixtieth anniversary and it is therefore opened by a good full-page picture of this scientist who has given so valuable contributions to the original journal. To the reader, the following essays seem to arrange themselves into three groups which — just in order to give a name to the special groups — could be designated as *olden times*, *present times*, and *future times*.

In the group belonging to the olden times, the editor seeks to show how deeply rooted the statistical science is in the Nordic peoples by introducing a number of great men of Nordic origin, each in his way, a pioneer. These men are represented partly in full page pictures, partly in the text. It may not surprise us that none of them is a "professional statistician", for the profession is only now being created. But they belong, each in his way, to the founders of this branch. In the eighteenth century *Wargentin*, the astronomer, founded population statistics which is of fundamental importance to demographics. The essay on him is particularly well written by *Nordenmark*.

The memory of the now nearly forgotten *Eilert Sundt*, who, by his activity as a clergyman, was brought to make scientific investigations of the society where he lives, and who gradually becomes a social-statistician of high rank, is revived both by a reprint of his peculiar essay of 1858: "On Piperviken and Ruseløkbakken (Investigations of the conditions and morals of the working-class in Christiania)" and by a scientific estimation of him ("Eilert Sundt's law") by *Rygg* who also gives an instructive account of how Sundt was disfavoured by his contemporaries, naturally in the first place by the politicians who had to do with the granting of money for his investigations! Unfortunately the politicians of the present times are not better; about that Thor Andersson himself could write a sad chapter!

Then follows *Thiele*, whose principal scientific passion, "the theory of observations", is simply the foundation of what is now more generally called mathematical statistics, and finally *Johannsen*, the investigator of heredity, who is commemorated by a picture as well as by a reprint and a translation into English of his contribution to the first volume of the original journal: "Biology and statistics".

Several other essays like those mentioned, also belong to the olden times. Thus *H. Palmströms's* essay on the first census in Norway in 1769 and that of *Thorsteinsson* on the census of Iceland in 1703.

The essays which the reader naturally refers to the "present times" are evidently caused by the editor in order to show the non-Scandinavian world the conditions in the

Nordic countries in two respects, both extremely important from a statistical point of view: the population registration and the industries, thus, firstly, how we gain our knowledge about the number and the composition of the population, and, secondly, how these people support themselves.

The editor could not have found any person more fit to write the "general" article about population registration than *Amnéus*, the director of the Oslo population register, whose institution is up to the standard and also has served as a model in many places, among others in Denmark. The condition of these matters in the different countries is further treated by the editor as far as Sweden is concerned, and as to Denmark by not less than two authors, *Bonde* and *Dalgaard*, and with regard to Finland by *Kovero*. These are very instructive essays which illustrate the importance of these things in the right way. One learns how even the "torso" (a not unjustified epithet for the arrangement introduced in Denmark, which was originally excellently planned, but which has been more than half-way broken to pieces by smallminded and short-sighted politicians, of course under the pretext of economy) of a population register, as that of Denmark, thanks to the fact that it is obligatory, gives an excellent support in many ways, among others for the 5-year censuses. One learns how deplorably far behind matters are in Wargentín's native country, where it was naturally necessary to perform registration in the large towns, but how the accomplishment of the work is hazarded by the rather antiquated and burdensome obligatory collaboration with the clergy — and by still many other things. A survey like this, presented to an international audience is perhaps more than anything else suited to advance the population register movement, which *shall*, however, once triumph by its inner necessity.

Next the editor has intended to give a picture of the industrial statistics of the Nordic states. He has himself undertaken to treat the most important part: "the mother industry", agriculture.

Aage I. C. Jensen treats fishery, *Sköien* shipping, *Geijer* the ore resources of the Nordic countries, *Velander* the water powers of the Nordic countries, and, forestry, finally, is treated by *Aminoff* (Sweden), *Sandmo* (Norway), and *Cajander* (Finland).

To the "present times" we may also count *Storsteen's*, to us, the inhabitants of the Nordic capitals very interesting article on "The expenses of living in the Nordic capitals", a subject full of pitfalls for a less experienced statistician, but here treated with excellent fineness and with a clear prescience of the difficulties.

To the same group belongs *Thorberg*: "Statistics and trade-union movement", a rather short but extremely interesting essay, not least on account of the author's position as president of the national organisation of the Swedish trade-unions. Here fall the weighty words about the social-political institution erected by the League of Nations for international labour organisation, that "the work of this organization is rendered extremely difficult by the fact that it has hitherto been almost impossible to arrive at any comparability between the statistics of the different countries".

Finally there is *Linder's*: "Some remarks on the income statistics of the census in 1920", which, according to its title, seems to belong to the present times, but which, according to its contents, is in the first place, a scientific arithmetical example for the illustration of the applicability of Pareto's law, concluding in some wishes with regard to the future official investigations of income. This essay can therefore be said to form the transition to the last group.

When I have permitted myself to designate the third group of essays as "future", there may thereby, as a matter of fact, not be understood any paradoxical possibility of prophesying the statistics of the future. I have only wished to emphasize the editor's desire that his journal may also be one of the laboratories where the instruments for the treatment of the future statistics are created. This side of the matter has always had the editor's supreme interest; you may think only of the contributions to the previous volumes, which Bortkiewicz, Tschuprow and others have brought. We can call this side the theoretical or perhaps the mathematic-statistical one. It has been an urgent need in this volume I to show, that also we, in the Nordic countries think of this side of the matter, and among the authors of the six essays of which this group consists (besides the above mentioned contribution

by Linders) we also find all the four Nordic countries represented.

Although the chief importance of treatises of this kind would seem to fall within the realms of theory, still one of this essays, namely *Nyblølle's* "Interpolation in statistics" is of rather eminent practical importance and use. Beside — or rather because of — his clear and sharp differentiation between the purely mathematical and the statistical meaning of the word interpolation and the very near connection of the last mentioned notion with that of adjustment, he here gives exclusively practical advice and instructions useful in circumstances which, so to say, belong to the every day life of the statistician. This treatise will be very welcome to many colleagues. In some opposition hereto stands *Ragnar Frisch*: "Correlation and scatter in statistical variables", in size as well as in importance one of the biggest treatises of the volume which will prick the conscience of many as it will make them clearly feel the obligation to penetrate more deeply into its contents — the author himself namely tells us that he has come "to various results, some of which are known, and others which are new, so far as I am aware" — but will easily feel frightened by the author's imposing mathematical apparatus, which is nothing less than n -dimensional vectors and appertaining matrices and orthogonal transformations. But one ought not to be frightened by these heavy implements. And this so much the less as the author presupposes no elementary knowledge in the field of vector calculation. On the contrary, he explains his whole apparatus thoroughly. There is no need of having heard words as vector or orthogonal before, and one will still be able to study this work, which, on this account has naturally become somewhat extensive (67 pages). It may be greeted with great satisfaction that one thus begins to attack the problems of theoretical statistics with such weapons. Terms such as scatter and correlation are so fundamental to science that we cannot take into use an apparatus precious enough to attack the problems contained in these terms. Here the best is not too good.

Further we meet *Jerneman*: "To the method of sampling" and *Lindeberg*: "Some remarks on the mean error of the per-

centage of correlation", essays well suited to waken respect for Nordic science abroad.

The contact with the kindred science, social economics, is in the volume attended to by *Gjermoe*: "The amplitude of industrial fluctuations", an essay covering 63 pages, which struggles with the difficult and not yet very well defined notions: times of ascent and descent, crises, fluctuations, and so on. The notion of "trend", so prominent in all the ultra modern investigations, belongs to the here used apparatus, and in a quotation — this essay is very abundant in quotations, which will be praiseworthy — we learn that it was already found by Hooker in 1901 and was defined by him as "the direction in which the variable is really moving when the oscillations are disregarded".

As rather specially belonging to the "future" we meet finally *Ångström's* brilliant essay on meteorology and statistics and have a presentiment that the latter is destined to play once the principal rôle before the former.

We will not end this review without another congratulation to Thor Andersson for having brought forth this volume I, followed by the wish and hope that his ideal struggle for the highest aims will meet with the wished for success before he grows too tired to fight against adversity. It is sadly known that the Swedish Riksdag has not granted him the necessary subsidy in spite of the fact that such recommendations as the following one could be appended to the petition:

"By the way in which Dr. Thor Andersson has edited *Nordisk Statistisk Tidskrift*, he has, according to our opinion, rendered great services towards the advancement of scientific statistics and towards the spread of the knowledge of its extraordinary importance, not only for other sciences, but also, and not least, for the obtaining of a real knowledge of the social and economical structure of society, a knowledge that is necessary if the public measures of correcting social evils and of furthering industry will have the wished for effect. His name guarantees that the journal will, also in the future, hold the same prominent position as it now holds among publications of this kind.

Stockholm January 17th, 1929.

E. Phragmén.

P. G. Laurin."

When not even this was of any use, one does not know what to do. Judging by former experience, it would be of still less use to refer to the fact that this journal is an honour for its country (and for the Nordic states in general) as there is not like it in any of the foreign countries. For from such an argument, presented by a favourer of Eilert Sundt in the Norwegian Storting, the short-sighted politician *Jaabaek* drew the conclusion that it was surely so because such things were superfluous! The grant to Sundt was denied and he withdrew to a clergyship. Will the present politicians really dishonour themselves still more in connection with this enterprise? Let us hope that the means will be found for carrying on this great work.